

University News

MONDAY, MAY 24, 1993

Rs. 5.00

MGR Medical Varsity Convocation



Shri Bhushma Naram Singh, Governor of Tamil Nadu & Chancellor of the Tamil Nadu Dr M G.R. Medical University, conferring the Degree of Doctor of Science (Honoris Causa) on Dr. A. Venugopal, Urologist (extreme right) Others seen in the picture from L to R are Dr B P Rajan, Vice-Chancellor, Shri S Muthusamy, State Health Minister and Dr J.S. Bajaj, Member (Health), Planning Commission, Govt of India, who delivered the convocation address



SCHOOL OF PLANNING AND ARCHITECTURE

(Deemed to be a University)

4, BLOCK B, INDRAPRASTHA ESTATE, NEW DELHI-110002.

APPLICATIONS ARE INVITED FOR ADMISSION TO ACADEMIC PROGRAMME (FULL TIME) FOR THE SESSION 1993-94

BACHELOR'S PROGRAMMES IN

- (i) ARCHITECTURE (5 Years) — 68 SEATS
(ii) PLANNING (4 Years) — 20 SEATS

Eligibility : (i) Pass in 10th Stage with Science, and (ii) Aggregate of 60% marks or above in four subjects including English, Physics, Mathematics at the Senior School Certificate Exam. of CBSE (12th Stage) or equivalent exam passed. Relaxation of 5% marks for (a) SCs and STs, (b) Children of military/para-military forces personnel killed/disabled in action during hostilities, and (c) Physically handicapped

Selection : Candidates are selected through Entrance Tests held in Delhi. Test-I will be held on 11th July, 1993. Candidates selected on the basis of merit in Test-I, will be required to appear at the Test-II on 13th July.

Reservation of Seats : SC—15%, ST—7½%, Children of personnel of military/para-military forces killed/disabled in action—5%, Physically handicapped—5%, and candidates belonging to Educationally Deficient States*—10% (*applicable to B.Arch. course only)

MASTER'S PROGRAMMES IN

- (i) ARCHITECTURE WITH SPECIALISATIONS IN—(a) Architectural Conservation (b) Industrial Design (c) Urban Design (upto 35 seats);
(ii) BUILDING ENGINEERING AND MANAGEMENT (15 seats).

(iii) LANDSCAPE ARCHITECTURE (15 seats), and

(iv) PLANNING WITH SPECIALISATIONS IN (a) Environmental Planning (b) Housing (c) Regional Planning (d) Transport Planning (e) Urban Planning (70 seats)

Eligibility : (i) M.Arch — open to B.Arch / B.Planning or equivalent Degree holders. For M.Arch. (Industrial Design) candidates holding B.Planning or equivalent Degree are not eligible. (ii) BE&M — open to B.Arch / B.E. (Civil) / B.Arch. Engg. or equivalent Degree holders. (iii) M.L.A. — open to B.Arch / B.Planning or equivalent Degree holders. (iv) M.Planning — open to B.Arch. / B.Planning / B.E. (Civil) / B.Arch. Engg. or equivalent Degree holders. Candidates possessing Master's Degree in Geography / Sociology / Economics / Statistics / Operation Research are also eligible for some of the specialisations. (v) 55% or more marks in aggregate at the qualifying examination. 50% marks in respect of SCs/STs candidates

Reservation of seats : SCs—15% and STs—7½%

Seats are made available to candidates sponsored by Central/State Government Departments, Statutory Organisations as well as Public Institutions.

Selection : Selection will be made out of restricted number of candidates called for interview and test on 5th and 6th July, 1993 at 9.00 a.m.

— — — — IMPORTANT DATES — — — —

- | 1. (i) Issue of Application forms commences on: | | BACHELOR'S PROGRAMMES | MASTER'S PROGRAMMES |
|---|---|------------------------|------------------------|
| (a) | Available from UCO Bank branches at Delhi : IIPA Extension Counter (I.P. Estate), Defence Colony (Near Moolchand Flyover), Connaught Place (Near Marina Hotel), Karol Bagh (Arya Samaj Road), Som Vihar (R.K. Puram), Punjabi Bagh (Ring Road) against payment of the Application Fee in cash (during working hours only) | 17-5-1993
Rs. 100/- | 17-5-1993
Rs. 150/- |
| (b) | By post from the School only against payment of the Application Fee by Demand Draft on SBI/UCO Bank in favour of 'SCHOOL OF PLANNING AND ARCHITECTURE' payable at NEW DELHI | 17-5-1993
Rs. 100/- | 17-5-1993
Rs. 150/- |
| (ii) LAST DATE OF ISSUE OF APPLICATION FORMS | | | |
| (a) | By Post from the School | 11-6-1993 | 11-6-1993 |
| (b) | From UCO Bank Branches | 14-6-1993 | 14-6-1993 |
| 2. | Last date of receipt of completed Application Forms at the School and by Registered Post. | 15-6-1993 | 15-6-1993 |

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IN THIS ISSUE

Administering a University	1
Funding of Major Projects in Science & Technology	4
You Can't Teach without Goofing	5
Morale of Teachers in Higher Education	7
Computer and Human-Brain Convocation	10
Tamil Nadu Dr. M.G.R. Medical University, Madras	11
Campus News	
Orientation Programme for Teachers	13
Accessing Medical Literature	13
Thrust on Asian Studies	15
Educational Administration and Law	16
Agriculture	
Horticultural Officers Meet	17
Haryana Towards 21st Century	18
News from UGC	
Countrywide Classroom Programme	18
Sports News	
National Sports Policy - An Appraisal	19
News from Abroad	
World University for Non-Violence	19
Book Review	21
Research in Progress	22
Theses of the Month	28
Classified Advertisements	30

Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

ADMINISTERING A UNIVERSITY

Ramesh K. Srivastava*

The question of administering a university evokes two contradictory responses : that it is a Herculean task meant now for only divinely-gifted and exceptionally efficient administrators or that it is as easy as a cake-walk which can be managed by a child if given a team of honest lieutenants and advisors. By going through the history of Indian universities, one can easily find numerous examples of anxious vice-chancellors, who sought even in the recent past, extensions of one full term after other, refuting the myth of university administration as a different task. No less in number are those who failed to complete a single term of vice-chancellorship and had to quit the university in the mid-term, showing that far from being an easy job, the administration of a university is decidedly a challenging assignment. Some universities had the privileged distinction of having vice-chancellors so eminently qualified and internationally-reputed in their fields that they transformed their universities into unique institutions in the country by chartering their academic course along idealistic lines. On the other hand, there are some universities, where retired military or police officers have been appointed vice-chancellors perhaps with the premise that administering a university is merely confined to and is no different from the law and order problem in the jurisdiction of a police station. Instances are not rare where vice-chancellors are selected not on the basis of their academic acumen and administrative ability but on the basis of several other factors. The vice-chancellor's role is to provide academic leadership and he is the manager of the university, appointment of a person lacking in these qualities as vice-chancellor has a variety of adverse effects on the university. Erosion of academic atmosphere in some of our universities is an outcome of choosing such persons as vice-chancellors.

A university comprises three interrelated and mutually-dependent constituents : teachers, non-teaching staff and students. The three parts have to be perfectly balanced and aligned but without ignoring the core factor that a university is meant basically for the benefit of students and researchers who come in quest of knowledge; the other two constituents, namely, teachers and non-teaching staff, are to help the students in achieving this noble aim. The duty of teachers consists not only in imparting the best education and guidance to students but also to undertake research so as to be conversant with the latest developments in their respective areas for enriching the quality of teaching & research. The non-teaching staff is meant to provide all facilities to the teachers and students alike so that neither is put to any inconvenience in the pursuit of their goals. Thus each organ is as important in the functioning of the university as a leg or a hand is for a human body. A university neither is nor can be a mere assemblage of students without teachers and non-teaching staff, nor can it be that of all the teachers without students or non-teaching staff. A good vice-chancellor does not sacrifice the interests of one for the sake of the other unless it is for the well-being of the institution. The healthy development of a university depends on a perfect balance and harmony between these three constituent parts.

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In order to safeguard their narrow administrative interests, some vice-chancellors do not allow the maintenance of this harmony in three branches of the university and instigate one against the other to play the old game of divide and rule largely due to fear that if allowed to function harmoniously, the three branches could unitedly take a stand against the vice-chancellor. Such a strategy does pay initial dividends to the vice-chancellor by making him almost invincible against the divided forces but rings a death knell for the academic interests of the institution. Given a stealthy encouragement by the vice-chancellor, the three branches can really be at each other's throats. The vice-chancellor may have a sense of mistaken pride that he, as a good administrator, has made them fritter away their energies in fighting against each other, keeping himself unscathed, without realizing that in his manipulated victory, he towers amidst his so-called adversaries not as a hero who has flattened his enemies in an arena but only like a tall mechanical crane of a demolition squad amid the self-created ruins of the university. By destroying its harmonious atmosphere, he administers the university only as peacefully as does the custodian of a morgue or a crematorium over the soulless bodies.

The vice-chancellors appointed on considerations other than merit have often been known to eye suspiciously the eminently qualified teachers of international repute. It is in them, particularly in his own university, that the vice-chancellor finds his potential successors and feels like guarding himself against them. Akin to the ancient princely intrigues in which the heir-apparent was eliminated for the sake of the throne, the vice-chancellor devises methods to harass renowned teachers through mediocres or forces them to go to the courts so that they remain engrossed in the legal battle for survival by temporarily derailing them from their academic pursuits. His lackluster colleagues are encouraged to go against the towering teacher so that the latter does not stake his claim for vice-chancellorship. Such a teacher could be trapped in a stage-managed scandal, a temporary embezzlement, a theft of equipment, an academic irregularity, an illegal admission, some administrative lapses, insubordination and many such pitfalls so that his sharp edges are blunted, his fangs smothered, in order to render him harmless from working against the vice-chancellor. Instead of having teachers of high calibre who don't compromise and do not yield in matters of academic interests, the vice-chancellor selects easily pliable mediocres, who usually have political contacts and patronize them, with the hope that such teachers would help him to continue for another term of vice-chancellorship. By rejecting the bright ones, he nips in the bud the ambitious ones so that they don't get promoted to higher cadres within their profes-

sional carrier, let alone aspiring for the vice-chancellorship.

It is worse when some of them suffer from a great deal of inferiority complex. Like mythological Lord Indra, such a vice-chancellor can't see anybody rising higher in fame for fear of usurping his throne. He is also allergic to teachers of unimpeachable integrity who do not compromise their conscience and are ready to call a spade a spade from the house-top. Whenever an academically unsound vice-chancellor is made to eat a humble pie by these academically-sound teachers, he turns into a wounded serpent, and operating shrewdly by proxy, he decides to cut the teachers to the size by engineering intrigues, encouraging plots and even laying traps for them. Once such a teacher is trapped in these stage-managed conspiracies with the connivance of mediocre teachers or dishonest employees, the vice-chancellor systematically demolishes his name, his reputation, his stature and even takes away his job till he prays and groans for mere survival. A punitive action against one university teacher unnerves a thousand others. No teacher then dare criticize the vice-chancellor, for fear of being thrown on the street. The vice-chancellor does not realize that in the reputation of the teachers lies the reputation of the university and of his own as an administrator. An eminent teacher is a goodwill ambassador of the university.

A large number of weak-kneed, spineless and incompetent teachers may initially please the vice-chancellor by being his yesmen; in reality, they serve none other than themselves. In the long run, meritorious teachers prove to be assets to the teaching community, the institution as well as the country. The students always respect such a towering teacher with a sense of gratitude for having been taught by a person whose name is known far and wide. In the classroom, a meritorious teacher answers all their questions, solves their problems, teaches them more than they could ask for, and every minute of their teaching period is enriched by his vast knowledge and profound scholarship. Wherever the students go, the reputation of the teacher continues to bring them rich dividends in the form of jobs, opportunities, scholarships, publications and recommendations. The name of the teacher acts as a passport for the success of the taught. Hence the vice-chancellor should have magnanimity to ignore the illusory humiliation from teachers of eminence and integrity if he is to ensure the betterment of the university.

Some vice-chancellors administer a university by proxy or, what may be termed, by a remote-control device. Politicians to the core, such vice-chancellors do not confront a ticklish situation face to face. If an

emergent situation arises or a crisis stares in the face, he takes shelter in his protected, palatial office or residence and orders the Deans, the Registrar or the Proctor to handle the situation. In order to shift his responsibilities on the shoulders of somebody, or to delay the solution, he may constitute a committee, seek a legal opinion, refer the matter to the Chancellor, call a meeting of the Deans of Faculties, or the Heads of the Departments, invite Presidents of various associations to put forward their views or even instigate the concerned parties to seek legal remedies. The method of administering a university by proxy has been found to be very useful in keeping the vice-chancellor out of any controversy because nothing affects him directly. He is concerned with his salary, his palace like residence, his honours received from academic bodies and other fringe benefits; how does it matter if a couple of teachers or students among thousands suffer or even die by his delaying methods? I know of a vice-chancellor who had the distinction of sending the largest number of employees to both local courts and the High Court. Such a strategy has double advantages for the administrator. By driving an employee to the court, he sends an indirect message to others that the next day someone else's turn could also come if he happens to take a stand opposed to that of the vice-chancellor. Another advantage is that rather than taking a decision over a controversial matter himself, particularly in which teachers may be divided, he allows it to be done by a judge of a Session or a High Court even if it costs the university lakhs of rupees. The vice-chancellor feels very happy that he remains comfortably perched in his chair while others, including the judges of the High Court, do the dirty work of taking an unpleasant decision for him. What he fails to realize is that once an eminent teacher or an honest employee is driven to the court on trumped up charges, it sends out wrong signals to the teachers and employees outside, discouraging them from seeking a job in such a university and, consequently, after a couple of years, many more people of merit leave the university rather than are recruited to it.

On many occasions, it is the politicians who get a vice-chancellor appointed and it is they who remote control the university by dictating terms to the vice-chancellor in matters of selection, suspension, confirmation, rewards and punishments, promotions and demotions of teachers and other employees.

There are some vice-chancellors who feel belittled rather than happy when other teachers or employees give good suggestions by realizing: why could they not think of it? Rather than rewarding his good advisors,

the vice-chancellor harasses them by wounding their ego, fracturing their self-respect and belittling them in the eyes of others. It is a known fact that in ancient times, the kings used to have strong Prime Ministers or advisors on whom the stability and peace of their kingdoms depended. A good vice-chancellor discourages flattery and encourages good advice if it happens to be in the interest of the university. The work of the vice-chancellor is to coordinate the activities of various teachers and employees. In this process, a really great man does not take credit for what he does but humbly keeps himself behind the curtain while he goes on directing all the activities on the stage.

To have a feeling that it is only by doing something irregular that one's powers are recognized is one of the fads of many administrators. One vice-chancellor is known to have said: "If I were to do everything according to rules, what difference is there between me and my subordinate officers? If I am the vice-chancellor, I must be able to do something *above* or *beyond* the rules. After all, it is I who make the rules." This arrogant display of power on the part of vice-chancellors is the main cause of the ruin of many universities. A great man is not known by the rules he breaks but by the rules he follows. He does not realize that for each rule he breaks in the university, there are hundreds of little rules which are broken by junior administrators, officers, teachers and even students who imitate him in their own areas and that breeds indiscipline and lawlessness in the universities. What gives the vice-chancellor a temporary feeling of satisfaction in bending the rules to suit his whims ultimately turns out to be the most deadly thing done against the operation of the rule of law in the university.

What is needed for a vice-chancellor is a combination of a god scholar, a fine administrator and, above all, a great human being. A good vice-chancellor does not go after his name but after that of the institution. He must be like a nameless pilot of an aircraft or an unknown driver of a railway engine who safely but anonymously ferries thousands of passengers to their respective destinations in quiet observance of his duty. Like a father to his children, he promotes the interests of his teachers, students and employees, encourages them for best teaching, research and official work, facilitates the development of their personalities, feels honoured when they earn names by reaching the pinnacle of progress but is prepared to take the entire blame on himself should they err, or happen to be involved in some unpleasant incidents of life. It is this feeling which is so essential in administering a university and yet is often seen conspicuously missing among a majority of administrators.

Funding of Major Research Projects in Science & Technology by Central Government Agencies

S.P. Gupta*

The Department of Science and Technology (DST), Government of India, publishes every year a directory of major research & development projects in science & technology funded by central government departments and agencies including the UGC. The directory for the year 1991-92 brings out several interesting facts about the R & D projects on the national level. In addition, many important conclusions can be drawn from the relevant data on the university system :

- (i) The total number of projects funded during 1991-92 was 1149. This is 6% less than the 1225 projects approved during the previous year. This perhaps is a perceptible effect of the growing financial crunch in the country.
- (ii) The projects belong to the disciplines of biological sciences, engineering, chemical sciences, medical sciences, physical sciences, agriculture and earth sciences. The biological sciences claim the highest number, roughly 30% and the earth sciences the lowest 6% of the total. Other disciplines fall in between, in the same order as stated above.
- (iii) Among the 18 funding agencies, the DST funded the highest number i.e. 31% of the projects and the India Meteorological Department the lowest i.e. only two projects, while the Department of Coal funded three projects only. The UGC funded 80 projects and ranks after DST, ICMR, CSIR, DBT, DAE and DRDO in the same order.
- (iv) The total number of institutions whose projects were approved during 1991-92 is 345. The universities comprise 51% of the lot. Besides, there are several colleges. All this goes to show that the university system, apart from the IITs, etc. forms the bulk of the research corpus in India.

- (v) The university system including colleges received nearly 60% of the approved projects, the national research laboratories 17% and the Institutions of National Importance (IITs, etc) also 17%.
- (vi) The number of projects received by the Indian Institute of Science, Bangalore is the highest of all the recipient institutions (61 projects) followed by IIT, Bombay (44), IIT, Delhi (35), IIT, Kanpur (32) and the BHU (27).
- (vii) The following list shows the top ten institutions in the university system on the basis of the number of R & D projects in S & T approved by the central agencies during 1991-92.

<i>University Institution</i>	<i>Number of approved projects</i>
Indian Institute of Science	61
Banaras Hindu University	27
Delhi University (including University College of Medical Sciences)	22
Hyderabad University	17
Rajasthan University	17
Jadavpur University	16
Panjab University	16
Calcutta University (including University College of Science)	15
Madras University	15
Osmania University	14

In sum, it may be observed that the university system generally is doing quite well and some university institutions are doing very well on the research stage of the country in the field of science & technology. The performance can be said to be exceptionally well, as compared to the national research laboratories, seeing the low investment for research in the university system

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YOU CAN'T TEACH WITHOUT GOOFING

Shivendra K. Verma*

Language is central to the whole process of education and is the principal means of communication. Most of the students who fail in the present educational system fail because they do not have adequate proficiency in language. They do not know how to use and communicate the knowledge that they have. What they need to acquire is the ability to use language to perform a variety of tasks and roles. Competence in language is essential to compete in any job. In a multilingual society, their success depends to a very extent on their ability to switch their linguistic gears as many times as they play different personal, interpersonal, and institutional roles in different settings. It also depends on acquiring different levels of proficiency in the languages they use.

India represents a multilingual and pluricultural society. Multilingualism/Linguistic plurality is our strength. There are 1652 mother tongues in India, over 100 languages spoken by about 662 million people; ninety of them are spoken by 10,000 people or more. Languages in a multilingual setting form a system network. Each language or language variety in this network has a function or cluster of functions assigned to it by the policy makers at the state and national levels. English, for example, has been used for years as associate official language of the country, an associate medium of higher education, a language of science and technology, a reference/library language, an international link language for people living in towns and cities, a language of upward, socio-economic mobility, a window on the expanding universe, a 'source' language and also as our main international link language. It is because of these important functions that there is a big demand for English at the state and national levels. This is, however, true that not all students will need English to the same level of competence. It is therefore important that we should identify the English requirements of various groups of students precisely, and try to provide for each such group the pattern of courses which will be relevant to the needs of learners. They do need English for academic purposes – for their creative writing and also for writing reports and papers for a global audience, for participation in national and international workshops, for getting into All India Services. The

demand for English from business houses and industrial establishments with international links has been increasing every year during the last ten years. The point that I would like to emphasize here is that the teaching of English in India is a complex process of learning how to mean in national and international settings – it is a process of helping learners capture, expand, and refine network of formal and sociocultural systems (the systems of English and those of the Indian languages) in interaction. It may be interpreted to mean a progressive mastery of a 'communicative competence' – the ability to use language effectively in different social contexts.

In order to achieve the objectives of teaching and learning English listed above, it may be useful to design a variety of courses tailored to the needs of consumers. bring in changes in syllabuses in the light of the roles and functions assigned to English and the needs of learners at different levels, produce new materials (including audio and video materials) based on the new syllabus, introduce orientation courses for teachers (organized in two parts – skills-based and language-competence based), and bring in reform in the system of evaluation. I would like to place research at the centre of these interrelated activities : needs analysis, curriculum reform; production of new materials, teacher-development programmes, and new systems of evaluation. I would also like these new materials and methodologies to be reviewed periodically in the light of the changing roles of English. The ultimate objective of all these activities should be to develop human resources – to enable teachers and learners to play their roles effectively, helping learners acquire not just context restricted, simulator – centered, textbook-based and syllabus-bound competence in handling English but to attain that level of competence which will help them use English with a fair amount of confidence in a variety of situations. What they need to have is exposure to a rich variety of linguistic and socio-cultural materials, with their focus on 'what to say and what to write, when and how'.

Policy Frame

Since 1985 the following documents stating policies and plans in the field of education have been published by the Government of India :

- (1) Challenge of Education – A Policy Perspective [1985]

* Vice-Chancellor, Central Institute of English and Foreign Languages (CIEFL), Hyderabad-500007.

- (2) The National Policy on Education [1986]
- (3) Programme of Action [1986]
- (4) Towards an Enlightened and Humane Society (Report of the Committee for Review of NPE 1986) [1990]
- (5) Report of the CABE Committee on Policy [1992]

The main recommendations of these committees in respect of languages are :

(i) Modern Indian languages are already being used as media of instruction at the school stage. The need is for their progressive adoption as media at the university stage.

(ii) It would seem necessary to undertake study of the language attainment of students : specify objectives of teaching different languages at the school stage; identify language skills that students must attain in terms of the specified objectives; develop textual materials for ensuring attainment of specified language abilities; organise preservice and inservice training of teachers in the methodology of language teaching; encourage research in the methodology of effective teaching-learning of languages; design specialized/bridge/remedial courses for school students, produce prototype textual materials, modules for inservice training of teachers and training of key personnel.

iii) Learning of English/Hindi should be facilitated not in terms of years of study but in terms of hours of study and level of attainment.

These recommendations reinforce the point made earlier that English has an important role to play. The following statistical details show the status of English in India :

(a) There are 20 million English-speaking bilinguals in India (*Kachru*, 1983)

(b) The total number of periodicals in English including dailies and weeklies has gone upto 5634 (upto December 1989)

(c) Roughly a third of all books and a fifth of all periodicals published are in English.

(d) English is used as L1 in Arunachal Pradesh, Mizoram, Nagaland, Sikkim, Andaman & Nicobar Islands (along with Bengali, Hindi, Tamil, Malayalam, Nicobarese), Daman & Diu (along with their Mother Tongue : Marathi, Urdu, Hindi), Goa (along with Hindi, Urdu, Marathi, Konkani).

(e) English is used as L2 in Assam, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Orissa, Rajasthan, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal, Delhi, Lakshadweep & Pondicherry.

Note

(i) In Madhya Pradesh students have the option to have English as their L1 at Middle and at Secondary stage of education; in Maharashtra, Uttar Pradesh, Andaman and Nicobar Islands, Chandigarh, Daman and Diu, students can have English as their L1 from class I to X.

(ii) There is no uniformity in the number of years of learning of English and the competency level to be achieved by the end of the Secondary Stage.

(f) There are 93 million children at the primary stage and 48 million at the secondary stage. There are 1.6 million teachers at the primary stage and 2.3 million teachers at the secondary stage. There are 180,000 primary schools with just one teacher. There are 90,000 secondary schools.

It is clear from these statistical details that the teaching of English in India at the secondary level is a massive operation. One of the ways in which we can help teachers and learners have access to English is by producing a package of prototype textbooks and also model lessons on audio and video tapes which may be adopted or adapted to suit regional needs. The Central Board of Secondary Education (CBSE) and the British Council must be congratulated on producing a set of textbooks and supplementary materials. These materials should be tried out in different situations; orientation and refresher courses should be organized for teachers and the system of evaluation should be updated keeping in view the objectives of the new teaching materials. Please note that perfect teaching and perfect teachers do not exist. Teaching is a process of creating a learner-friendly environment, encouraging learners to externalize their built-in language learning and language-using ability. Teachers are learners. All teachers 'goof', but only good teachers turn goofing into a creative activity. English in India is what it is because of its functions in a new socio-cultural setting.

Useful Questions

It may be useful for language teachers and applied linguists to examine the following questions and answers:

(a) Does grammar have any place in language teaching? The answer to this question is 'yes' and 'no'. 'Yes', if grammar emerges out of 'language in use'; 'No', if it means a network of networks of rules used to illustrate the explanatory power of a theory. Every learner creates his own sociogrammar in terms of which he recreates the language around him.

(Contd. on page 9)

Morale of Teachers in Higher Education

J.N. Kapur*

The performance of any system depends on the morale and motivation of the main participants in the system. In higher education system, the main participants are students, teachers and administrators. In some sense, teachers can be regarded as the most important of the participants.

Pandit Nehru had said, "If universities do their job well, all will be well with the nation". We might add, "If teachers do their job well (and proper conditions exist enabling them to do their job well), all will be well with the universities".

Today many teachers, if not most, are frustrated and alienated from the system. They believe that the power is in the hands of the Vice-Chancellor, bureaucrats and a small group of senior teachers on the one hand and with some teacher politicians (whom some teachers do not hesitate to describe as "mafias") on the other hand. They feel that their promotions are dependent on the whims of some individuals and their relations with them and are independent of the quality of work they do. They, therefore, try to please these powerful persons by all means, since they know that once these powerful persons are on their side, they can take their teaching duties lightly, they can cut classes with impunity, they can engage in private tuitions on a large scale, they can do side businesses, they can oblige friends and 'advance' in life, but if they displease some of them, their lives can be made miserable and their promotions will be out of question.

In this feudal atmosphere, very few dare to raise their voice against corruption and favouritism of vested interests in higher education and even if they do, they do it only when their personal interests are involved and then they are not supported by others with the result that they get even more frustrated. Their idealism becomes a casualty and they become 'compromisers with reality'.

Some teachers also get frustrated because they find that there is no recognition for good teaching and many students are not interested in real learning. They are interested only in passing examinations and they feel that they can pass the examination without attending classes and by engaging their own teachers as private tutors near the examination days. Teachers also become frustrated because they cannot really guide the students

in their learning process. They are also frustrated because there are very little funds at their disposal for buying good books and journals. Therefore, they can neither read good books and journals nor advise their students to do so. Though they feel that they are capable of giving much better education than they are doing and they feel helpless. They tend to become cynics and they tend to communicate this cynicism to their students. They feel that nothing much can be done with the present system and all talk of high scholarship, character building, idealism, moral and ethical values appears shallow in the present situation.

They become even more frustrated when they learn that appointments in other countries are made strictly on merit, that teachers examine their students and give them their grades, that good teaching is evaluated and rewarded in an objective fashion, that industry contributes substantial funds for higher education, that banks give loans to students to buy textbooks (so that every student has a personal copy of the textbook with him), that teaching assistants are available for correcting assignments, that students work for 50 hours a week for 40 weeks in a year, that students submit assignments on time and work regularly, that jobs are given on merit and not on recommendations so that students have a real motivation for learning, that govt gives generous grants to libraries and in fact govt guarantees funds for buildings, libraries and laboratories in the same manner in which the govt guarantees salaries in our country.

The above may appear to be an exaggerated picture, but it is based on personal discussions with groups of teachers attending orientation programmes in academic staff colleges.

The teachers ask, "What should be done to change the system?" and when I tell them that we should accept the western education system in toto with its continuous open assessment system by the teachers, the teachers showing answer books to all students, with student evaluation of teachers, with appointments of teachers on the basis of objective criteria laid down in detail in advance and with selection committees giving detailed reasons in writing for their selecting some candidates with records of selection process being open to all, with elimination of secrecy from appointments, promotions and examination system, the students getting loans and part-time employment opportunities and with complete elimination of political influences, the immediate reac-

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tion is, "Such a system cannot exist and even if it exists in other countries it cannot work in India and even if it has to be implemented in India it has to be implemented through a govt. order and teachers cannot do anything about it".

The teachers cannot be blamed because they have seen only one educational system and they have no contacts with the other systems even though they agree that the universities in other countries are delivering the goods and prosperity of developed countries depends upon highly productive graduates they produce.

Two arguments which are very often advanced are, "We do not have the same resources as those of the other countries and there is too much corruption here for such a system to succeed."

Nobody can deny that we do not have the same financial resources as the developed countries. We are devoting only 3 % of our GNP to education while some of these countries are devoting as much as 6% their GNP to education. But we devote a much larger percentage of our educational budget to higher education than they do.

The major question is however whether we are utilising our meagre resources properly. If their students study for two thousand hours a year, and our students study on an average for 300 hours a year, if their teachers sit for their academic work in their offices for 45 hours a week and ours sit for 20 hours a week, if their buildings are used from morning to midnight and ours are not, if their libraries are full of students and ours are deserted except near examination days, we are wasting 80% of our financial resources and what is worse, we are wasting 80% of our human resources.

They are rich and they can afford to waste their funds to some extent. We are poor and we cannot afford to waste a single paisa. However the paradox is that they are using their resources 100% and we are not, and this is because of the system they have adopted where everybody is accountable to every one else and there are enough checks and counterchecks to see that nobody can exploit the system.

The other argument about our being more corrupt is also wrong. If there are any loopholes in the system, people everywhere tend to exploit these in their own interest. The problem is that our system has so many loopholes and so much lack of mutual accountability that it can be exploited even by fools, without any fear of consequences. The British had designed it to keep all the power in their hands and those whom they trusted. We are still clinging to the system based on mistrust of all except a few.

The education system affects the character of the persons it trains. Thus students in other countries have to submit their assignments to teachers in time, they have to appear in weekly quizzes and monthly examination and they thus learn the habit of systematic and regular work. Our students do not have to study for most part of the year and they do not develop the habit of systematic and hard work. There the assignments are corrected and handed back to students who get a feedback to their mistakes immediately. Here a student may never know his mistakes and may continue to repeat them. There for every careless mistake he is reprimanded and he learns to be careful in whatever he does. Here our students get no lessons in careful work. There teachers get back feedback from their students about their teaching. Here our teachers never get this feedback with the result there is no motivation for improving their teaching. There every member of the selection committee knows that the decisions can be questioned and he has to give his reasons in writing and as such he dares not to be influenced by pressures. Here there is no accountability of any member and so he is willing to be influenced by recommendations. There the govt will give funds to only those institutions which do good work and do not hesitate to close down substandard institutions. Here all institutions receive funds irrespective of their performance. There is no motivation for Principals and Vice-Chancellors to improve their institutions and they do not even mind exploiting the institutions in their own interests.

What can an individual teacher do under these conditions?

- He can voluntarily agree to be assessed by his students about his teaching. At the end of every semester, he can give a questionnaire about various aspects of his teaching and ask his students to fill it up without writing their names and use the responses to improve his teaching. He should also persuade other teachers to join in this voluntary evaluation process.
- Though the system may allow him to cut classes, he should not cut any class whatever be the temptation. On the other hand, he should try to take extra classes for the classes he misses on account of unscheduled holidays.
- He should prepare his lecture notes carefully and revise these as often as possible. He should try to teach new courses whenever opportunities arise.
- He should attend orientation and refresher courses as often as possible.
- He should take a positive attitude that changes can be brought about if there is sufficient will.

- He should love his students, love his subject, love learning it and love teaching it
- He should be proud of being a teacher and being in a position to influence thousands of young people at a very important stage in their lives
- He should not criticise individuals for their actions, he should criticise the system and try to improve it.
- He should draw his inspiration from those teachers who are dedicated to their students, their teaching and their research. Fortunately there are still a large number of such teachers in every college and university. At least he should not give respect to those who do not do their work properly
- He should draw inspiration from the great intellectual advances in arts, science and technology.
- He should feel convinced that excellence in higher education is vital for India to compete in all international fields and he and his children will be able to live with dignity in the modern world, if he can contribute his bit towards excellence in higher education.
- He should form forums of teachers who are interested in working for quality in higher education so that collectively they can exert a positive influence.
- He should have faith that in spite of the present darkness, India will have a bright future consistent with its glorious past.

YOU CAN'T TEACH WITHOUT GOOFING

(Contd. from page 6)

(b) Is literature in or out? This is not a real question. The real question is - how to help learners enjoy reading literary texts and explore the possibilities of literature as a resource for using language effectively and forcefully.

(c) Does communicative language teaching offer solutions to all the problems of teachers and learners? The answer is : 'No', for there is no empirical evidence to prove it. The best method is the method that works Grammar has a role to play Translation has a role to play Direct method has a role to play A good teacher makes use of a variety of strategies to facilitate learning. What's important is the use of English for interpersonal interaction in real life settings.

The time has come for us to demonstrate that theory-generated dichotomies between 'process' and 'product', 'tasks' and 'activities', 'use' and 'usage', 'accuracy' and 'fluency' have precious little value for teachers, for they are not only interrelated but mutually reinforcing concepts.

Suggestions

My suggestions based on 41 years of teaching experience are .

- (a) Put Ravi in the driver's seat and let him drive. You should sit next to him and play the role of a confidence-builder and guide, keeping in view the following statements made by Ravi:

Tell me and I forget
Teach me and I remember
Involve me and I learn

Let him therefore find his way to good driving under your guidance

- (b) Ravi can't learn without goofing; you can't teach without goofing, to goof is human
- (c) If you make Ravi memorise answers to a handful of questions that he is likely to be asked, you are preparing him for a particular examination, but if you inspire him to wrestle with problems and find solutions, you prepare him for life, for all possible examinations
- (d) You must give Ravi a boost to making his own generalizations and taking his own decisions.
- (e) Every normal, human learner has a build-in potential for acquiring not just one language but any number of languages provided he is exposed to these languages in a natural setting. In an L2 situation it can be made possible by producing good materials and good teachers. What we need to do is to work on the following fronts simultaneously the teacher, the learner, the materials, and the system.
- (f) Let Ravi talk and write; let Ravi read and interpret - organizing and ordering his points; let Ravi talk and write effectively and forcefully Let Ravi make his choices and put them together. The point to note here is that talk is not merely social and communicative, it is also a tool for learning.
- (g) Remember that Ravi needs both security and liberty. We as teachers must have enough sense to know when to interfere gently, otherwise there is no security. We must also know when to leave Ravi alone, otherwise there is no liberty.

Computer and Human-Brain

Siri Krishan Wasan*

Computers are an important part of many aspects of our life in the present age. Like electricity, computers are being used almost everywhere. If earlier technology has extended man's muscle power, the integrated circuits (IC's) may control man's brain. The progress of information technology is rapid and amazing.

A computer, which is basically an information processor, can not only perform difficult computations at very high speed but is being used from space crafts down to the mines. Airlines reservations, Telephone Exchanges, Office Administration, Weather Forecasting, Research and Education are some of the few important areas of computer applications. Today, computers can not only process numerical data but also graphs, maps and sentences. Machines may also act like a human brain in few areas leading to algorithms formalisation. Computers have solved problems that were difficult even for mathematicians of high calibre

What is life? What is intelligence? Can machines reproduce themselves? Can machines have emotions, happiness and sadness? are some of the difficult questions which scientists are trying to answer. Before we think of possibilities of modelling life or intelligence, we have to answer some of the above mentioned questions. It is beyond the possibility of present day technology to create an organized living organism or to understand cause and effect relationship of system which makes it intelligent. It is difficult to say whether or not human brain resembles a computer. We know very little about how the brain operates. Our brain is capable of responding to a variety of situations. A very sophisticated and powerful computer may fail to perform even the tasks which look trivial for a human being, for example, even a dumbest clerk can recognize written numbers easily while sorting mail. He can read pin code written in any ink, in any portion of envelope of any size whereas a sophisticated computerized mail sorting machine will not be able to handle such variations. Science and fiction writers may be worried about answering questions, such as - Does human brain resemble a computer? Can computers overshadow human intelligence? The human mind has tremendous flexibility. The brain is made of several thousand million nerve cells called neurons. The network linking these neurons is highly complex and intricate. The fibre that links these neurons is called dendrites. It is remarkable

that the dendrites are not connected with one another and there is a thin gap called synapse between the end of dendrites. It is difficult but fascinating to explain many activities of human brain such as problem solving, reasoning, consciousness and memory. Can connection machines with millions of processors provide a model for brain? Perhaps not, even in the near future. The biological substances which transfer information between brain and body is a difficult thing to understand. In the field of psychobiology attempts are being made to study mindbody communications. Perhaps brain function is modulated by numerous chemicals and neuro-peptides receptors. The brain stem and the spinal cord are the locus of neuro-peptides activity. In the medical sciences, the study of mind-body communication is of immense importance. For example, it will be very useful to study the effect of a particular medicine, say analgesic on pain facilitating neuro-peptides or pain blocking neuro-peptides. What is the link between mental state and recovery from disease? Does disease alter mental state? What happens during stress? Why is it when one is emotionally upset when there is some feeling in gastrointestinal track? are some of the questions which not only concern medical scientists but will interest even AI (Artificial Intelligence) researchers. The study of biochemical substance responsible for information transaction between mind and body will generate a new area of interest.

We are far away from the stage of creating a model of human brain. The human brain can do pattern recognition almost instantly but even the most sophisticated computer is not adequate to do this job. Logical thought in human mind is created like a mathematician tries to solve a problem. Logical thought is a creative process. Artificial Intelligence researchers are trying to create computers which think. Cybernetics, a study of control system can be used to study nervous activity.

The mental process is non-disjunctive while every machine is disjunctive. Machines are created by men by integrating several parts but living organism is developed out of a single cell. Mental activity may be described as data processing but these processors continuously change and get modified by experience. The future trends in computer technology, biological and medical cybernetics will be to develop a model of human brain. The initial step in this direction is research into the system of pattern recognition, the simulations of conditional reflexes and the study of neural networks.

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Evolution of Medicine

"If medicine has to respond to the new challenges, it must generate such social environment in the medical schools that would specifically change the students' future behaviour in terms of the anticipated role of the physician as a catalyst of social and psycho-behavioural change", said Prof. J.S. Bajaj, Member, Planning Commission & President, National Academy of Medical Sciences while delivering the Convocation Address at the third annual convocation of the Tamil Nadu Dr. M.G.R. Medical University, Madras. "The teaching and learning of medicine must now take into cognisance educational concerns about the ethical values that the medical students acquire as a part of their undergraduate and postgraduate education. The ethical dilemmas not only emerge as a result of psycho-social evolution of man, but also relate to technological advances of modern medicine. While the ideals of the dignity of man and the social interdependence of human community may seem utopian, there is undoubtedly a need to humanise medicine while preserving its intrinsic scientific core", he added. Excerpts

The progress of medicine at any period of history must be viewed in the context of the social relevance and the societal needs at that point in time. Evolution of medicine may thus provide the key to the understanding of evolution of man. During the 20th century, there has been an intense debate between the proponents of rigorous requirements for the learning of scientific basis of medicine, and those who argue equally forcefully for upholding the traditionally recognised needs for the learning of necessary skills and appropriate attitudes to translate the principles of science into the sublime art of practice of medicine. While the science of medicine provides the requisite knowledge, learning of skills is an essential prerequisite to build up the necessary competence. In the ultimate analysis, what counts is a blend of knowledge and competence, culminating into performance of the highest professional order.

Sushruta Samhita, a compendium of our ancient heritage, em-

phasises the need of combining theoretical knowledge and practical skills in a most inimitable style.

"He who is learned only in the theory of the science but not skilled in practice gets confused at the approach of a patient, just as a weak-hearted person is confounded when facing a battle. One who is an expert at practical work but is devoid of theoretical knowledge of the science, does not receive the approval of good men, and receives capital punishment from the king. Both such persons are inept, and are inept in the discharge of their duties, for they know only half the science. They are like birds with the one wing only."

It is therefore obvious that over the centuries the evolution of medicine has been both in its scientific content as well as in its professional accomplishment.

However, the continuing evolution of human mind is now making additional demands on medicine as a profession. Sir Julian Huxley, the

noted biologist, in a lecture delivered at the Chicago University in 1959, added a psycho-social dimension to the process of evolution.

"Man's evolution is not biological but psycho-social; it operates by the mechanism of cultural tradition, which involves the cumulative self-reproduction and self-variation of mental activities and their products. Accordingly, major steps in the human phase of evolution are achieved by breakthroughs to new dominant patterns of mental organisation of knowledge, ideas and beliefs-ideological instead of physiological or biological organisation."

Huxley argued his case further with great conviction when he wrote in his essay on 'Emergence of Darwinism':

"In the light of our present knowledge, man's most comprehensive aim is seen not as mere survival, not as numerical increase, not as increased complexity or organisation or increased control over his environment, but as greater fulfilment – the fuller realisation of more possibilities by the human species collectively and more of its component members individually."

It seems axiomatic that there must be a convergence of the psycho-social dimension of man's evolution and the socialisation of medical education, both striving to contribute effectively towards enrichment of the quality of life. In other words, the basic role of medicine need not and indeed must not, be only to add years to life; it should also strive to add life to years. At the time when India attained independence, the average human life span was a mere 32 years. In 1991, it was 58.1 years in the case of a male, and 59.1 years in the case of a female. Thus, during our own life time, a major accomplishment has been the doubling of the average

human life span in India. Nevertheless, if medicine has to respond to the new challenges, it must generate such social environment in the medical schools that would specifically change the students' future behaviour in terms of the anticipated role of the physician as a catalyst of social and psycho-behavioural change. The teaching and learning of medicine must now take into cognisance educational concerns about the ethical values that the medical students acquire a part of their undergraduate and postgraduate education. The ethical dilemmas not only emerge as a result of psycho-social evolution of man, but also relate to technological advances of modern medicine. While the ideals of the dignity of man and the social interdependence of human community may seem utopian, there is undoubtedly a need to humanise medicine while preserving its intrinsic scientific core. This can only be achieved by homogenously blending the basic sciences such as anatomy, physiology, bio-physics, bio-technology and molecular biology, with the behavioural sciences including psychology, sociology and anthropology.

A cross sectional profile of those who enter the portals of medical colleges indicates that the students are highly intelligent, conscientious, hard working, curious to observe, eager to learn, and generally come from middle class strata of society. At the time of entering undergraduate medical courses, a significant number of students are motivated to develop human dimensions of medical learning. However, by the time they pass the final examination, majority of the graduating physicians tend to enter postgraduate courses, guided in their choice by the market economy. Even amongst those who do not find opportunities of higher learning, there are hardly a few who exhibit social mindedness and therefore

join avenues such as general practice or family medicine, aimed at strengthening community health services. Thus, rather than enhancing the motivation to serve society which may still be a guiding force at the time of entry to medical schools, the academic environment over a period of five years becomes counter-productive for nurturing such ideas, let alone strengthening and reinforcing healthy social mindedness. The reasons may be complex. These may relate to power structure in medical schools, the processes of decision making, and above all, the role models provided by the faculty where a highly skilled super-specialist commands and get all the power and privileges. Should we not strive to create those role models which exhibit in abundance the attitudinal traits that we wish to engrain in the minds of our students? This requires a deep introspection by all of us who hold professorial chairs, and are entrusted with the responsibility to mould and sharpen young minds. How often do we pause and look for that spark of brilliance amongst our students, which if nurtured carefully, is likely to enlighten the path of next generation? We must remember that every student of ours carries a small imprint of our values. The system of medical education can only be humanised through the transformation of medical educators.

Having developed at some length the comparison and contrast between the basic sciences on the one hand, and the social and behavioural sciences on the other, let me conclude by attempting a final synthesis. We have entered an exciting era of human biology wherein the application of the newer tools and techniques of molecular biology have helped us to construct the demographic history of human population. Recent studies of mitochondrial DNA have shown that it accumulates mutations five to ten times as fast as the nuclear DNA, is inherited maternally, and that the rate of change is uniform over time, is the same for all species,

and approximates 2 percent sequence divergence per million years. More importantly, it seems that all of us had a common ancestor, a single female, who lived about 2,00,000 years ago. Whether this Eve lived in Africa or Asia is still a matter of scientific debate.

The same scientific tools which ushered a new and highly specialised era of mitochondrial pathophysiology in medicine, are also helping us not only to unravel the mysteries of origin of man, but also the migration pattern of populations by tracing human lineages. Mitochondrial anthropology has generated a scientific revolution which may in itself provide the clue to human evolution. Indeed, the ultimate may be a mitochondrial unity amongst demographic diversity! A unique blending of basic and behavioural sciences.

An important role of medical and health universities, such as yours, should be to develop programmes of continuing education not only for medical graduates, but also for those who qualify for nursing, pharmacy and other allied health professions. Those who are receiving their degrees today must remember that formal education with prescribed curricular contents and syllabi must not be viewed as self-contained learning throughout the professional life span, which is much longer than the period spent on formal education. We must realise that continuing education is not just a response to the individual needs, today, it is a result of both public demand as well as professional pressure. The development of such technologies as distance learning must be adapted to the needs of continuing professional education for all health care providers. I do sincerely hope and wish that the Tamil Nadu Dr. M.G.R. Medical University shall take innovative steps to play a leadership role in this direction. It would be our endeavour to extend every help and assistance in this direction.

Orientation Programme for Teachers

The Academic Staff College of Himachal Pradesh University recently organized its 14th Orientation Programme. Inaugurating the programme, Prof. K.C. Malhotra, Vice-Chancellor, Himachal Pradesh University, called upon the college teachers to understand the aim and significance of education in the contemporary Indian society. He said that the currents of change were swift and violent, and in order to effectively cope up with them it was essential that teachers understood their role and performed their duties more responsibly. He highlighted the importance of teacher training in the higher education particularly in view of the requirements and expectations of the society. According to Prof. Malhotra, teachers in higher education executed multiple responsibilities like imparting vocational skills and knowledge, doing research and seeking solutions to many social problems, training teachers for other levels of education, etc.

The curriculum for the Orientation Programme was designed by Dr. K.K. Gosain, Coordinator of the Programme and Dr. Yoginder Verma, Director, Academic Staff College in accordance with the guidelines of UGC and the needs and expectations of the participants. For identifying the learning styles of the participants, a special workshop was conducted. The needs for training were identified through different exercises such as Breaking the Ice, Brain Storming, Discussion, Pre-Orientation Awareness Test, etc. Main emphasis during the programme was laid on learning by activity and participation. The participants were provided ample opportunity for learning new teaching

techniques and improving already adopted teaching techniques. In the first week of the programme the teaching style of each participant was evaluated with the help of videoisation of their teaching.

During the Orientation Programme, a number of techniques facilitating the enhancement of teaching conceptions in each teacher were utilized. Some of these were Communication Game, Group Problem Solving, Group Dynamics, Hidden Talent, Buzz Session, Fish Bowl, Video Presentation, Workshop, etc. The interaction among resource persons and participants was enriched with a package of 27 articles presented to the participants as an additional reading material.

Monitoring and evaluation was an integral part of the programme. The group performance was closely examined and evaluated by the course team on daily and weekly basis. Pre-Orientation Awareness Test was conducted for assessing the level of understanding of participants with respect to teaching dispositions. At the end of the programme multi-quiz test was held with the purpose of evaluating the performance of participants and also revising the knowledge already imparted to them.

17 college teachers from different universities participated in the 4-week programme.

Refresher Course for University Administrators

The Centre for Human Resource Development, University of Delhi, is organising a Refresher Course for University Administrators from May 24-28, 1993. The course aims

to help the participants to improve performance in general administration including functional areas like University Management, Educational Planning and Administration, Financial Management, Application of Computers and Inter-personal Dynamics, etc. Enough emphasis has been placed on the key managerial aspects of administration and on helping participants to develop appropriate knowledge and skills for their work within their departments/institutions.

The course contents include (i) The role of University Administrators, (ii) University authorities, their roles and responsibilities; (iii) Efficiency and effectiveness in higher education; (iv) Effective Office Management, (v) Communication skills and team work; (vi) Management of information system and the use of new technology; (vii) Financial Management, budgeting and accounting, (viii) Managing specific functions at University, faculty and departmental levels, (ix) Application of computers in University System, (x) Records management and inventory control, (xi) Leadership and interpersonal dynamics; and (xii) Role of University Grants Commission, AIU in improving the administrative efficiency.

The training programme is designed primarily for senior and middle level administrators with experience and administrative responsibility in universities and training institutions.

Accessing Medical Literature

A computer-based system, set up by the National Informatics Centre (NIC), can provide within seconds information on health and medicine from across the world.

Anyone can gain access to the system which gives information extending to literature, published and unpublished, in all areas of medicine, including dentistry, nursing, cancer, AIDS, toxicology, population, and health planning and administration.

The system, called MEDLARS (Medical Literature Analysis and Retrieval Systems), has been created by the National Library of Medicine (NLM), Bethesda, U.S.A. It is the most extensively used biomedical information system in the world and comprises 28 databases

"This is the first time in the country such a large database is available for searching," says Mrs Sita Lakshmi Chinnappa, project coordinator, Bibliographic Information Division, NIC.

"We entered into an agreement in November 1987 with NLM and started providing information in January 1988. First, a telephone line was set up and we did it on telephones till March 1989," she says

The setting up of the MEDLARS centre in India is a part of a programme with three objectives started jointly by NIC and Indian Council of Medical Research (ICMR).

The first aim was to bring to India international biomedical databases to make current information available to medical researchers and doctors. The second was to create national databases to international standards and the third was to train doctors and information workers in modern information technology

The NIC, which has been designated as the Indian Medlars Centre (IMC), provides MEDLARS services through its satellite based computer network - NICNET. This network can be accessed from all 500 district headquarters of NIC. The NICNET also provides linkages to international networks, using which the IMC has been directly

linked to the NLM. Thus, it is possible to get access to all MEDLARS databases.

One of the most important databases of MEDLARS is Medline. It covers articles from more than 3,500 journals in 70 languages in the field of general medicine including nursing, dentistry and pre-clinical sciences.

The majority of users are M.Phil, Ph.D., and M.D. students, doctors and scientists.

In 1991, NIC entered into a tape lease agreement with NLM. Since then, the magnetic tapes arrive every month, are loaded into the system and processed by the IMC

"Medline data from 1985 onwards can be searched by anyone in India who has a NICNET connectivity. We use a menu driven bibliographic retrieval software BBS/SEARCH to search this database. Information from Medline prior to 1985 and other databases is available on request," Mrs Chinnappa, also Joint Director, NIC, says.

"In the beginning, the volume of searches was very low. When we began this service in 1987, we performed 461 searches. People were trying to understand what it was. Last year, we performed 10,600 searches," she says

When an institution is not linked to NIC, users can visit the nearest NIC office and submit their search requests. They can also submit the searches at select medical institutes that have access to IMC via NICNET

To locate their journals, users can search an online catalogue of biomedical journals which gives the journals holding data from 190 biomedical libraries.

The IMC offers interactive access to select biomedical databases on compact disc. They can simul-

taneously access upto 14 databases on these discs. It is also possible to dial up this network from remote locations.

Besides, the centre answers queries by mail. The searches are processed and results mailed back to the users.

IGNOU Convocation

Shri R. Venkataraman, former President of India, said that a system of enormous flexibility was needed to meet the needs of equity and continuing education. Distance education provided the answer. It was not a supplement to the conventional system; nor was it a competitor. He was delivering the presidential address during the fourth convocation of the Indira Gandhi National Open University (IGNOU) in New Delhi recently. Mr Venkataraman said distance education was a new mode with characteristics of its own and was meant to meet the new challenges that the conventional system was unable to, since it had not been designed for these requirements

"The learning society needed a learning revolution. Many changes were bound to happen in the educational scene. Distance education heralds a learning revolution", he said.

The former President was of the opinion that traditional aristocracies of every sort were slowly disappearing and new ones were emerging or the scene. Among them the aristocracy of intellect and perfection in performance would ever endure and that is what "Excellence" was. "It is something to aim at and strive for. It must be consciously promoted," he added.

IGNOU Vice-Chancellor, Prof V.C. Kulandai Swamy said, 4,444 students had qualified for certificates, diplomas and degrees this year. Last year 47,575 students took

the entrance examination and 58,288 students appeared in the regular examinations.

The VC informed that the Commonwealth of Learning (COL) had conferred the designation of Commonwealth Centre of Excellence on IGNOU. He said this was a great morale-booster.

He said the IGNOU had a countrywide network of 16 regional centres and 219 study centres. The study centres were served on a part-time basis by nearly 500 coordinators and assistant coordinators, 900 supporting staff and over 9,400 academic counsellors. Over 1,000 specialists from different parts of the country were involved in the preparation of the programmes.

Lord Briggs of Lewes, Chairman, Board of Governors, COL, sounded a note of caution by saying that educational ventures in these difficult times required to be well-managed and cost-effective. Unless they were, no amount of rhetoric would suffice. He complimented the IGNOU for laying adequate emphasis on implementation as well as planning.

Prof James A. Maraj, COL president, said the COL would soon establish an audio teleconferencing network to link IGNOU with its regional centres and with other open universities in India.

Kurukshetra Varsity Admissions

The Admission Committee of Kurukshetra University in its meeting held recently under the Chairmanship of Dr. S. Arya, Vice-Chancellor, decided the schedule of admissions to various undergraduate, postgraduate and diploma courses in its University Teaching Departments, 73 Colleges affiliated to it in the 9 districts of Haryana including the

Regional Engineering College, Kurukshetra, Shri Krishna Govt Ayurvedic College, Kurukshetra and five Colleges of Education, for the year 1993-94. According to the Vice-Chancellor, major decisions taken at the meeting include abolition of written test for admission to 3-year LL.B. (Professional) course for which minimum admission eligibility would now be 45% marks instead of 35% in the qualifying examinations and admission would now be made on merit. The Admission Committee turned down a proposal made by a Sub-Committee, assigned to examine the procedure for admission to B.Ed course, to interview the candidates for admission to B.Ed course. The admission to this course will continue to be made on merit as usual.

Admission to other Professional courses viz. MBA/MCA/MTA/PG-DMM, Post M.A./M.Sc. Diploma in Computer Science, M.A. (Social Work) will continue to be made by entrance test. The Committee also decided to admit candidates sponsored by Non Govt./Private Sector Organisation to various professional courses.

Candidates who are doing M.A./M.Sc./M.Com. in the University have been allowed to compete for admission to various professional courses like MBA/MTA/M.Com./MCA, etc. where qualifying in entrance test is one of the essential conditions to join the course. It has also been decided to give weightage of 5 marks in merit to those who have actively participated in the Mass Functional Literacy Programme of N.S.S.

The University has also decided to introduce a new course of 3-year B.Sc. Home Science in the University College, Kurukshetra from the next academic session. Another 3-year course of Bachelor of Physical Education, Health & Sports, sanc-

tioned by the UGC is being started in the University College, Kurukshetra w.e.f. 1993-94 itself.

The committee also approved separate academic calendars to be observed by the University Teaching Departments and its Colleges so as to ensure minimum teaching for 180 days in a session in keeping with the parameters laid down by the University Grants Commission for academic excellence.

Visvabharati Varsity Thrust on Asian Studies

The Visvabharati University is reported to have decided to frame an academic perspective plan for the next 10 years with special thrust on future development and Asian studies. According to Prof. S. Bhattacharya, Vice-Chancellor, "It is essential to have a long-term perspective on how the university envisions its future in terms of teaching and research areas to be developed and specification of consequent needs for human and material resources."

Prof. Bhattacharya said that with an addition of Rs three crore to the university's plan budget it had become possible to partly redress its financial imbalance.

He said in the past few months the university had obtained the help of the French government to support a teaching position in French language. There was provision for a visiting professor at the university from China and exchange of scholars with China under a recent cultural protocol. The Nippon Bhavan now nearing completion, was also expected to provide an impetus to Japanese studies, he said.

Stressing the need for reversing the trend of the parochialisation of universities, both in national and international terms, Prof. Bhattacharya said unfortunately the universities

had no defence against infringements on their resources or rights.

The vice-chancellor said while referring to the activities of the university, the Department of Adult and Continuing Education and Extension had so far mobilised 40 village development societies and eight mahila samities through which training was being imparted for generating self-employment schemes in rural sector

Educational Administration and Law

The Centre for Work Study in Educational Administration, Panjab University, proposes to organise two-week training programme on "University/Educational Administration and Law" for officers of Universities and Educational Institutions in India from July 5-16, 1993

The objective of the course is to expose the educational administrators to various provisions of law and their application in educational administration.

The Course Contents include – University Authorities; Manpower Structure in Universities; University Administration Legal/Administrative Problems and their causes, University Employees : Problems of Motivation and Discipline; Principles of Natural Justice in University/Educational Administration, University Employees : Their Welfare and Social Security; University Employees : Mechanics of Grievance Redressal; University Employees : Unauthorised Absence, Strikes and other modes of agitation; University Services and Consumer Protection; Management of University Estates and Works; Unfair Means in Examinations; Admission (Students) Disputes and Disciplinary Action against Students and Staff, etc.

Further information may be obtained from Shri Shital Parkash,

Hony. Director, Centre for Work Study in Educational Administration, Panjab University, Chandigarh.

Visvabharati Varsity Convocation

Presiding over the convocation of the Visvabharati University the Prime Minister Mr P.V. Narasimha Rao called for reviewing the role of the youth and the educational institutions in human resource development in the light of the new demands of contemporary economy and society Mr Rao, who is also the Acharya of the university, said "we have to build our new thinking and action on the traditions created by the leaders of thought and opinion like Rabindra-nath Tagore".

He said the educated youth might play a significant role in human resource development and more generally in shaping the society and the three most important areas of such activities were the eradication of illiteracy, participation in non-governmental organisations and voluntary associations to spread a scientific outlook to combat obscurantism and promote population education and health and family welfare programmes.

Highlighting education as the area of focal attention, Mr Rao said educational investment constituted the bases of human resource development which was inseparable from the development of the country.

Referring to the literacy mission, he emphasized on building an appropriate environment to enthuse the masses to join the learning centres and said the voluntary service rendered by university students would be of far better quality than what could be obtained from the paid service of less educated personnel.

Mr Rao said despite the resource constraints, the universities should

play a specially important role in the country's struggle against social backwardness in its many forms and against an obscurantist social outlook

"The message that the university can put forward with greatest social relevance is the message of a modern scientific outlook, secular, universalistic and national, as opposed to the obscurantist forces in our society which lead us towards disintegration and inter-communal or inter-regional animosities", he said.

He, however, suggested that the youths, instead of depending entirely on support from the university or from the government, should deploy their energy in the arena of non-governmental organisations

Mr Rao urged trainee doctors to involve themselves in public health education programmes and said the doctors might treat diseases right at the point of their origin

Measures for population control and family welfare can never succeed unless a new consciousness is generated among the people, he said and urged the students of social science to educate the people, who had not got the benefit of school or college education

Mr Rao also urged the students of agricultural colleges to disseminate the modern knowledge of agricultural techniques and spread it to the rural masses.

Addressing the convocation, Union Human Resource Development Minister Mr. Arjun Singh called for synthesization of different beliefs in the country and said the spirit of tolerance taught by the country's great leaders and philosophers should be pursued in the present changing world.

In his address Vice-Chancellor Prof Sabyasachi Bhattacharya said the universities had become more vulnerable as soft institutions and had no defence against infringements on their resources or rights.

The Prime Minister conferred Desikottama, the highest honour of Visvabharati, on progressive poets Kaifi Azmi and Subhas Mukhopadhyay and nuclear scientist Dr Raja Ramanna and in absentia on Prof Alex Aronson and Pandit Bhimsen Joshi. He also presented Gagan Abani Awards to sculptor Chintamani Kar and painter K.G. Subramanyan and Rabindra Puraskar to Satish Dhawan (in absentia) and K.P. Viswanathan.

Ambedkar Open University Corpus Fund

A 'Corpus Fund' has been created to raise donations for building up Dr. B.R. Ambedkar Open University in terms of academic, research and other administrative infrastructure. Announcing this in Hyderabad recently Prof. S. Bashiruddin, the Vice-Chancellor said that under the revised Income Tax Act, donations to University's Corpus Fund were fully exempted from Income Tax.

He hoped that both its alumni who comprise distinguished men and women and also well-wishers who realise the yeoman service being rendered by the university to equalise access to higher education, would come forward to donate generously. All donations may be sent to the Registrar, (Member-Secretary), Corpus Fund, Dr. B.R. Ambedkar Open University, Somajiguda, Hyderabad-500 482.

CSIR-RSS Pact for S&T

Council of Scientific and Industrial Research (CSIR) is reported to have signed a pact with Royal Scientific Society (RSS), Jordan for S&T work plan cooperation for 1993-95 covering the areas of development of materials for machinery components; component/product development and fabrication; solar energy utilisation; wind energy programmes; biomass utilisation;

software development for industrial training and other applications; and computer networking.

The pact was signed by Dr E.S.

Rajagopal, Director, NPL on behalf of CSIR and Mr. H. Khadra, Director, Design and Technology Centre, RSS, Amman, in New Delhi recently

News from Agricultural Universities

Horticultural Officers Meet

Addressing the scientists and horticultural officers at Chaudhry Charan Singh Haryana Agricultural University after inaugurating the 3-day Horticultural Officers Workshop, Shri Harpal Singh, Minister for Agriculture, Haryana said that Agro-based Processing Units would be installed in the state shortly in view of the bright future of agriculture, horticulture, floriculture and vegetable cultivation in Haryana. He said that to make up the technological differences between the developed countries and India in respect of packaging and marketing of the produce of horticultural and vegetable crops, the scientists had to develop such high yielding, disease resistant and non-perishable varieties of these crops whose produce could be retained for longer time. It would also enable the farmers in getting the remunerative prices, he added. Referring to the useful researches being conducted at the university, the Minister said that its scientists were busy in improving the life style of the 80 percent population of the state.

Dr. A.L. Chaudhry, Vice-Chancellor in his presidential address disclosed that the total area under fruits and vegetable cultivation in Haryana was about 62000 hectares out of the total net cultivated area of about 3.5 million hectares. He said that Haryana had achieved a breakthrough in agriculture and oilseeds production and now the time had come when the scientists had to ensure nutritional security by develop-

ing location specific technology in respect of the horticultural and vegetable crops. The Vice-Chancellor deplored that in absence of the appropriate post-harvest technology of these crops, the state was suffering an annual loss of around 25 crores in respect of horticultural and vegetable crops alone. On the other hand, the farmers had to sell their produce under stress during the peak season itself. The VC urged the scientists to develop primary post-Harvesting Technology and encourage the maximum number of producers in its adoption. Urging the researchers to explore the possibility of mixed farming of fruits and vegetable crops, Dr. Chaudhry said that intense studies should be taken up on agrohorti-system at different regions with different combination of fruits and vegetable crops.

Dr. H.C. Sharma, Director Research, CCSHAU disclosed that during the year 1992, the university identified and released five high yielding varieties of tomato, okara, brinjal and the spice crop coriander. He said that encouraging results had been achieved on the studies taken up on meadow orcharding system and seed and seedling production.

Mr. M.K. Miglani, Commissioner and Secretary Agriculture, Haryana, emphasised the need of popularising the cultivation of export oriented fruits and vegetables. He said that pesticide residue was

health hazard and the scientists should take up research work for its control.

Our 200 extension workers and officials of the state department of Horticulture and the university scientists participated in the workshop.

Haryana Towards 21st Century

"On one hand the population is increasing at a rate of 15 million every year while on the other, India is losing six thousand million tonnes of top soil every year due to increasing forest cover. Further frequent recurrence of droughts, floods causing massive erosion of soil and environmental degradation are adding to the miseries. In such situations, if we have to fulfil the dream of achieving around excellence by enabling the country to shape itself for 21st century, it is essential that the new technologies developed by the agricultural experts are applied at grass-root level so that end users are benefited accordingly", observed Dr. A.L. Chaudhry, Vice-Chancellor, Chaudhary Charan Singh Haryana Agricultural University (CCSHAU)

while speaking at 2-day inaugural function of state seminar on "Haryana Towards 21st Century" organised by Haryana Vigyan Manch in collaboration with the Directorate of Research of CCSHAU.

Dr. Chaudhry said that after over four and half decades of independence, half of our population continued to live below the poverty line and other 55 percent population remained illiterate. To meet the basic needs of food, housing, clothing, education, health, fuel and communication, we had to embark on newer areas of science and technology as use of science and technology alone could decide the shape of India in 21st century. Dr. Chaudhry urged the agricultural experts to promote receptivity of the masses for the acceptance of the new technology.

During the course of the seminar, panel discussions were held on experiences and prospects of crop production, livestock and their economics, health, energy and linkages between literary movement and newer technology, etc. through six technical sessions.

"Starfinder - V. Laws of Motion"

"Popular Statistics"

5.6.93

"Film Criticism - I"

"5th UGC Video Contest 1992 : A Report"

"Week Ahead"

6.6.93

No Telecast

7.6.93

"Like a Sun"

"Hospital Management in India"

"Yours Sincerely"

Ind Transmission
4.00 p.m. to 5.00 p.m.

2.6.93

"Black Diamond - Buckminster Fullerene"

"Ways of Thinking - IV Spheres of Sound"

"Reconstructive Microsurgery"

3.6.93

"Electrochemistry of a Cell"

"By the People - I"

4.6.93

"Film Criticism - I"

"5th UGC Video Contest 1992 : A Report"

"The Week Ahead"

5.6.93

No Telecast

6.6.93

No Telecast

7.6.93

"Like a Sun"

"Hospital Management in India"

"Yours Sincerely"

News from UGC

Countrywide Classroom Programme

Between 2nd June to 7th June, 1993 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 1.00 p.m. to 2.00 p.m. and 4.00 p.m. to 5.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission
1.00 p.m. to 2.00 p.m.

2.6.93

"Conquerors of Nature :

The Succulent Plants"

"Renewable Energy for Better Environment"

"Archives of the Earth"

3.6.93

"Graphics with Microcomputers - I Introduction"

"Time"

"New Approaches to Teaching and Learning English"

4.6.93

"Environment Education : In and Across the Borders - I"

National Sports Policy – An Appraisal

The National Association of Physical Education & Sports Science, in collaboration with the Korfball Federation of India recently organised a one-day Seminar on "National Sports Policy – An Appraisal" in New Delhi. Shri M.C. Gupta, President, Korfball Federation of India and Member Secretary, Tenth Finance Commission, in his presidential address, suggested an innovative approach to produce more than a million sportsmen in India in different disciplines in the next few years. He also suggested that every middle/high school and college should be earmarked for one game or sport such as Football, Hockey, Cricket, Volleyball, Korfball etc., though having facilities for any other sports if possible. Even with just ten schools dedicated to one game in a district, and with only 25 reasonably good players in each school, every district would have 250 or more players of reasonable standard. With more than 400 districts in the country, each game could have more than one lakh players. Shri Gupta further emphasized that promotion of sports in India was not so much a question of arranging finances but of managing our affairs in the desired manner. Sustained and sincere efforts were required for sports promotion. Talking of constraint of resources, he pleaded for a larger role by voluntary and non-governmental organisations and utilization of sports funds raised in educational institutions.

Prof Upendra Baxi, Vice-Chancellor, University of Delhi, in his inaugural address, stressed upon the need for inviting social and natural scientists in sports seminars so as to promote the application of social and natural science techniques for the promotion of Sports in India. He was of the opinion that separating the world of academics from the

world of sports resulted in demoralization of sports participants. He called upon the Seminar to evolve a Citizen's Resolution on National Sports Policy.

Delivering the keynote address Shri M.M. Rajendran, Secretary, Parliamentary Affairs and former Secretary, Youth Affairs and Sports emphasized the need of broad-basing of sports, and broad-basing of human resources in the form of sports trainers and teachers. In his valedictory address Shri Bhagwat, Secretary, Youth Affairs and Sports and Director General, Sports Authority of India, assured the participants that the recommendations and suggestions made at the seminar would be duly considered by the Government of India and Sports Authority of India.

Shri O P Bhatia, Executive Director, Sports Authority of India opined that an inter-disciplinary approach to talent scouting was called for. Dr D K Kansal, Co-Chairman of the Seminar and Principal of Indira Gandhi Institute of Physical Education & Sports Sciences referred to the absence of prescribed textbooks of physical education for school children and non-existence of any degree course in sports coaching. He also stressed that in order to produce competent teachers there was a need to provide appropriate infrastructure facilities to all the institutions of physical education and sports sciences in the country.

After detailed deliberations the following recommendations were made :

(1) Middle/High schools should be earmarked for one premier game or sports to facilitate production of a large base for selection of good teams and to improve district level, state level and national level competitions.

(2) There should be a provision of higher education and research in physical education in Indian universities.

(3) The Department of Sports and Youth Affairs should provide encouragement to authors for producing books on physical education, sports and games.

(4) There is a need to have uniform course material/syllabi for Bachelor's degree in Physical Education and Sports. The University Grants Commission or the Association of Indian Universities were called upon to take up this task.

(5) Guidelines may be formulated for quality control at the production centre of physical education teachers and sports coaches in the country.

(6) A three year Bachelor Degree in coaching should be started in the Indian universities.

(7) There is an immediate need to improve scientific criteria of sports talent search and training of selected sportsmen.

(8) There is a need of effective testing of physical fitness of the students of physical education at the universities in India.

Over 100 delegates from all over India participated in the seminar.

News from Abroad

World University for Non-Violence

Acharya Sushil Kumar, who heads the International Mahavir Jain Mission which is affiliated to the UN as a non-governmental organisation,

said that he had held talks with Mr Mikhail Gorbachev and other dignitaries about the possibility of setting up a world university for non-

violence in New York. Both he and Mr Gorbachov recently attended the global forum for spiritual and parliamentary leaders in Kyoto. Mr Gorbachov launched the International Green Cross before the conclave began.

The Acharya said it would be affiliated to the Peace University already established in Costa Rica. A site near the UN in Manhattan was being explored. His mission has a centre in Blairstown, New Jersey.

While the Acharya would be the president and founder, Dr. N.P. Jain, a former diplomat, would be the vice-president.

Mr Gorbachov is reported to have told him to send him some material and to discuss the project further in Moscow. "We want to give visibility to the principle of environmental protection", the Acharya said.

At the Earth Summit in Rio last June, he said, the UN had for the first time incorporated the principle of non-violence. He envisaged the university acting as a peace brigade where disputes between different religious factions would be solved.

The noted part-Indian philosopher, Fr Ramundo Panikkar, told the global forum of spiritual and parliamentary leaders that education was too important to be left to educators.

"Education is two-way traffic", he said. "It can't be entrusted to specialists. It consists of the communication of life experiences, rather than the transmission of information".

He made what he called a 'heretical' statement in saying that true education could not be imparted through any technical means like satellite TV. "Any education through intermediaries is no good, hence the continuing significance of the guru in the Indian tradition", he added.

Dr Karan Singh, who was a panelist at a session, said that it would be wrong to expect too much of the global forum and the newly-launched International Green Cross. "All the

same, the sheer assembly of so many people from different disciplines and countries is bound to create some synergy. If nothing else, these will serve as a vehicle for propagating ideas", he said.



Indira Gandhi National Open University

Schedule of Telecast for the period 1 June to 30 June, 1993
6.25 a.m. To 6.55 a.m.

Date/Day	Academic Programme	Title
2.6.93 Wednesday	Rural Development	People Amidst Natural Surroundings
4.6.93 Friday	Management	ITDC – A Case Study
7.6.93 Monday	Bachelor's Degree Programme	Historigraphy
9.6.93 Wednesday	Rural Development	Kabiley
11.6.93 Friday	Management	Policies and Institutions of Small-scale Industries
14.6.93 Monday	Bachelor's Degree Programme	Aadhunik Bharatiya Itihasankan evam Lekhan
16.6.93 Wednesday	Library and Info Science	1. Dewey Decimal Classification Pt. III 2. Open Channel
18.6.93 Friday	Management	Developing a National Level Advertising Campaign
21.6.93 Monday	Bachelor's Degree Programme	Linear Transformation and Matrices
23.6.93 Wednesday	Higher Education	Meet the Indian College Student
25.6.93 Friday	Management	Quality Control
28.6.93 Monday	Bachelor's Degree Programme	Raikhik Rupantaran aur Avyuh
30.6.93 Wednesday	Food and Nutrition	Nutrition during Pregnancy

Overtaken by Events

V. Suryaprakasa Rao*

P.K. Ghosh. *Business and Government*. Delhi, Sultan Chand & Sons, 1990. Pp. 324. Rs. 32.50

Sad to relate, business houses in India operate in a regulated framework. There are controls everywhere. Entrepreneurial efforts are not encouraged, ideas do not get translated into action owing to innumerable bureaucratic hurdles. The brilliant entrepreneurs have to get the 'nod' from the 'sarkari babus' at each and every stage; the files will pick up speed only when the right buttons are pressed at the right time, the finances will be obtained only when the entrepreneur has the ability to curry favours with the bankers or the financial institutions, the license will be granted only when you are backed up by powerful regional demi-gods. Corrupt environments, greedy officialdom, controlled regime, frustrating systems and back-breaking rules, draconian legal framework and unsympathetic governmental machinery – these were some of the important hallmarks of business environment till the other day.

The situation has changed dramatically ever since Dr. Manmohan Singh has taken over the reins of the Finance Ministry in early 90s. Sweeping and sometimes stunning changes have been introduced with a view to unleash the forces of free market economy. Exim policy has been

liberalised, the FERA Act has been amended; the list of industries in the negative list has been pruned continually; a framework for exit policy has been finalised; multinationals have been welcomed through enticing incentives; financial sector reforms have been introduced with a view to 'open up' the economy further; the institution of Controller of Capital Issues has been abolished, the SEBI has been set up to take care of the capital markets from close quarters, public sector shares have been allowed to make their entry in the capital markets; stock brokers have been disciplined; the setting up of private banks have been encouraged, and many more stupendous changes have been introduced with clock-work regularity such as the full float of the rupee; removal of controls on yellow and white metals; the introduction of gold bank scheme, etc. The reforms package has many more attractive offers. The aim is to liberalise the economy and boost the country's exports. In short, the government – for the first time in the post-Independence period – has been encouraging the Indian as well as foreign entrepreneurs to set up shop here and operate the business houses without bureaucratic influence, political manipulations and legal hurdles.

The book under review, *Business and Government*, tries to focus attention on the 'multiple facets of Government regulatory policy in the

context of planned economic development and the nature of legal and administrative measures which have been evolved over time'. The Policy measures initiated by various governments, after Independence, and their impact on planned economic development have been outlined in a critical manner. The first two chapters provide a bird's eye view of the regulatory mechanism in which business houses have to operate in India. The subsequent chapters throw light on industrial licensing, industrial sickness, small industry, public sector and joint sector enterprises, trade practices, foreign investment and collaborations, capital issues, regulation of the securities market and export-import controls. The author, a distinguished academician and former Vice-Chancellor, has done well to collect information from innumerable government publications, expert committee reports, research agencies and present the same in a 'capsule' form, keeping the unique requirements of students pursuing MBA, MA and M Com courses in various Indian universities in mind.

In view of the recent dramatic policy changes in the fields of banking, insurance, capital markets, foreign investment, export-import policy, and many other fields it would be better if the contents of the book are restructured suitably. A radical surgery is required to cut off the 'excess fat' and reorient the textual matter in tune with the latest policy changes. The subject-matter, against this background, seems to be outdated and unless all the chapters are rewritten, highlighting the basics of Manmohanomics in a critical way, it may not meet the expectations of students in particular and the discerning and knowledgeable public in general.

* Reader and Head, Commerce Dept, S.V. College, Dhaua Kuan, New Delhi - 110 021

A list of research scholars registered for doctoral degrees in Indian Universities

PHYSICAL SCIENCES

Mathematics

1 Arunima Kumari. Non-linear wave propagation in gas-dynamics. BHU Prof R R Sharma, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

2 Mishra, Sanjay Kumar Pseudo-differential operators. BHU Prof R S Pathak, Department of Mathematics, Banaras Hindu University, Varanasi

3 Pandey, Archana Generalised functions. BHU Dr I K Khanna, Department of Mathematics, Banaras Hindu University, Varanasi

4 Rakesh Mohan Special functions integral transforms and their applications. BHU Dr (Mrs) M Bhargava, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

5 Sanjay Kumar Summability of series. BHU Prof L M Tripathi, Department of Mathematics, Banaras Hindu University, Varanasi

6 Singh, Arvind Kumar Certain problems in distribution theory. BHU Dr O P Singh, Department of Applied Mathematics, Banaras Hindu University, Varanasi

7 Singh, Ram Mohan Certain exact solution in general relativity and cosmology. BHU Dr T Singh, Department of Applied Mathematics, Banaras Hindu University, Varanasi.

8 Singh, Sawal Kishore Numerical methods in heat transfer. BHU Dr K N Rai, Department of Applied Mathematics, Banaras Hindu University, Varanasi

9 Singh, Shobha Nath A study on the theory of bundles. BHU Dr R N Singh, Department of Mathematics, Banaras Hindu University, Varanasi

10 Srivastava, Dharmesh Kumar Some contribution to the geometry of submanifold. BHU Dr Kalpana, Department of Mathematics, Banaras Hindu University, Varanasi

11 Srivastava, Vikas. On free convective flow through porous medium. Dr A K Singh, Department of Mathematics, Banaras Hindu University, Varanasi

12. Tiwari, Satish Chandra. On differentiable structures. BHU Dr R N Ojha, Department of Mathematics, Banaras Hindu University, Varanasi

13 Yadava, Gopal Singh A distributional approach to special functions. BHU Prof R S Pathak, Department of Mathematics, Banaras Hindu University, Varanasi

Statistics

1 Md Ripter Hossain Statistical inferences using prior informations (Bayes approach). BHU Dr B N Pande, Department of Statistics, Banaras Hindu University, Varanasi

2. Singh, Akhileshwar Prasad. Statistical inferences using prior information. BHU Dr B P Singh, Department of Statistics, Banaras Hindu University, Varanasi

3. Singh, Prabhat Kumar Some preliminary test estimators and shrunken estimators. BHU Dr R P Singh, Department of Statistics, Banaras Hindu University, Varanasi.

4. Singh, Rajesh. Statistical inferences under conditional specification. BHU Dr R P Singh, Department of Statistics, Banaras Hindu University, Varanasi

5 Singh, Rajesh Kumar On estimation of parameters utilizing prior information. BHU Dr B P Singh, Department of Statistics, Banaras Hindu University, Varanasi.

6 Singh, Sanjay Kumar Demographic models relation to couple fertility. Dr K K Singh, Department of Statistics, Banaras Hindu University, Varanasi

7 Singh, Sanjeeva Kumar Some problems of estimation and testing conditional specification. BHU Dr R D Singh, Department of Statistics, Banaras Hindu University, Varanasi

Physics

1 Acharya, Anjana Studies in anti proton studies. BHU Dr A V Lagu, Department of Physics, Banaras Hindu University, Varanasi

2. Agnihotri, Dilcep Kumar Charged particle and neutron evaporation studies in fusion reactions at high excitation and high angular momentum. Panjab Prof I M Govil, Department of Physics, Panjab University, Chandigarh.

3 Asthana, Anjana Structural and electronic properties of Si and TiO₂ semi conductors. BHU Prof O N Srivastava, Department of Physics, Banaras Hindu University, Varanasi and Prof R S Srivastava, Department of Physics, Banaras Hindu University, Varanasi.

4 Bhattacharya, Ashish P P annihilation in penning trap. BHU Dr A V Lagu, Department of Physics, Banaras Hindu University, Varanasi

5 Biswas, Abhijit. Ion implantation studies. BHU Prof A K Nigam, Department of Physics, Banaras Hindu University, Varanasi

6 Chaturvedi, Vibhuti Narain Studies on propagation characteristics through dielectric waveguides. BHU Prof K K Dey, Department of Physics, Banaras Hindu University, Varanasi

7 Chaudhary, Pankaj Kumar Delayed annihilation of anti-proton in He. BHU Dr A V Lagu, Department of Physics, Banaras Hindu University, Varanasi.

8 Chondke, Sadashiv Maruti Structural electrical and magnetic properties of Al doped Ni-Cd ferrite. Shivaji. Dr R N Patil, Department of Physics, Shivaji University, Kolhapur

9. Dayanand Kumar. Spectroscopic studies on some organic and biomolecules. BHU. Dr B P Asthana, Department of Physics, Banaras Hindu University, Varanasi.

10. Desai, Tejaswini Suresh Rao. Studies on heterojunctions formed with CdSe and Ba-Cd-O films. Shivaji. Dr S H Pawar, Head, Department of Physics, Shivaji University, Kolhapur.

11. Dogra, Rajesh. Hyperfine interaction measurements using perturbed angular correlation techniques. Panjab. Dr A K Bhatti, Department of Physics, Panjab University, Chandigarh.

12. Datta, Shantanu. Magnetic impurities in semiconductors. BHU. Dr P C Srivastava, Department of Physics, Panjab University, Chandigarh.

13. Eapen, Antony. Vibrational spectra of crystals. Kerala. Dr G Arul Dhas, Department of Physics, University of Kerala, Kariavattom.

14. Kulkarni, Sudhir Nilkanth. Electrical magnetic and structural studies on some Li-Cd ferrites. Shivaji. Dr S K Chougule, Head, Department of Physics, Shivaji University, Kolhapur.

15. Lamba, Sushil. The study of strongly correlated systems. Panjab. Prof S K Joshi, Director General, Council of Scientific and Industrial Research, New Delhi and Prof S Prakash, Department of Physics, Panjab University, Chandigarh.

16. Mai, Jayati. Laser spectroscopy of molecules. BHU. Prof S N Thakur, Department of Physics, Banaras Hindu University, Varanasi.

17. Mamta. Quantum dynamics of coupled systems motivation and present status of the problem. Panjab. Dr Vishwa Mittar, Department of Physics, Panjab University, Chandigarh.

18. Mane, Tanaji Balkrishna. Studies on low latitude No 2 and O3 measurements from zenith sky observations in visible region. Shivaji. Dr M B Dangre, Head, Department of Physics, Shivaji University, Kolhapur.

19. Mohan, Anita. Diagnostic studies of solar plasmas. BHU. Dr B N Dwivedi, Department of Applied Physics, Banaras Hindu University, Varanasi.

20. Narayan, Dharmendra. Whistlers and VLF wave phenomena. BHU. Dr R P Singh, Department of Physics, Banaras Hindu University, Varanasi.

21. Nimbalkar, Rajendra Shivaji. Structural and luminescence studies of ZnCdS films phosphors. Shivaji. Dr R D Lawangar Pawar, Department of Physics, Shivaji University, Kolhapur.

22. Pande, Ashwani Kumar. Nuclear structure studies at higher excitation energies. BHU. Dr L Chaturvedi, Department of Physics, Banaras Hindu University, Varanasi.

23. Pandey, Amit. Phonon scattering processes and phonon conductivity in solids. BHU. Dr K C Sood, Department of Physics, Banaras Hindu University, Varanasi.

24. Perumal, A Narayana. A study of electron molecule collisions. BHU. Dr D N Tripathi, Department of Physics, Banaras Hindu University, Varanasi.

25. Rajaram, Bhanudas Seemile. Studies on some rare earth ion doped magnesium - cadmium ferrites. Shivaji. Dr B K Chougule, Head, Department of Physics, Shivaji University, Kolhapur.

26. Sehgal, Rajesh Kumar. Study of B physics in L3 at lep. Panjab. Prof I S Mitra, Department of Physics, Panjab University, Chandigarh.

27. Singh, Anuj Kumar. Density functional theory of liquid crystals. BHU. Prof Y Singh, Department of Physics, Banaras Hindu University, Varanasi.

28. Singh, Benoy Kumar. Phonon transport in solids. BHU. Dr K C Sood, Department of Physics, Banaras Hindu University, Varanasi.

29. Singh, Chandresh Kumar. Studies on semiconductor electrolyte interfaces. BHU. Dr D P Singh, Department of Physics, Banaras Hindu University, Varanasi.

30. Srivastava, Sundi Kumar. Laser spectroscopy of molecules in vapour and condensed phases. BHU. Prof S N Thakur, Department of Physics, Banaras Hindu University, Varanasi.

31. Subha Rani. Study of conduction phenomenon in solid state electronics devices. BHU. Dr B B Srivastava, Department of Physics, Banaras Hindu University, Varanasi.

32. Upadhyay, Vinod Kumar. Study of biologically important molecules.

BHU. Dr P G Mishra, Department of Physics, Banaras Hindu University, Varanasi.

33. Yadav, Birendra Kumar. Study of heavy ion reaction using SSNTD. BHU. Dr S K Bose, Department of Physics, Banaras Hindu University, Varanasi.

Chemistry
1. Bajpai, Lakshmi Kant. Synthesis of possible spermicidal and antileishmanial agents. BHU. Dr A P Bhaduri, Division of Medicinal Chemistry, Central Drug Research Institute, Lucknow and Dr A K Mukherjee, Department of Chemistry, Banaras Hindu University, Varanasi.

2. Bandhu, Kavita. Synthesis and reactivity of pentamethylphosphorane. Panjab. Prof S K Vassht, Department of Chemistry, Panjab University, Chandigarh and Dr B N Anand, Department of Physics, Panjab University, Chandigarh.

3. Bhandal, Balwinder Singh. Chemistry of organochalcogen compounds. Panjab. Dr K K Bhasin, Reader, Department of Chemistry, Panjab University, Chandigarh and Dr Gopalji Mishra, Director, Forensic Science Laboratory, Panjab University, Chandigarh.

4. Dan Singh. Electroorganic synthesis. BHU. Dr R A Mishra, Department of Chemistry, Banaras Hindu University, Varanasi.

5. Garg, Pramod Kumar. Coordination chemistry studies on some ternary lanthanoid complexes. H S Gour. Prof M C Saxena and Dr S N Laxye.

6. Gupta, Brij Kishor. Studies in heterocyclic chemistry. BHU. Dr R L Gupta, Department of Chemistry, Banaras Hindu University, Varanasi.

7 Gurmeet Kaur Alkoxy alkenes as terminator in cation-olefin reactions. Panjab Dr Sanjay Trehan, Department of Chemistry, Panjab University, Chandigarh.

8. Jayaraman Laser photolysis and physico chemical studies on complexes. BHU Dr S D Khatni, Department of Chemistry, Banaras Hindu University, Varanasi

9 Katiyar, Samiksha Synthesis of biologically active marine natural products. BHU Dr A P Bhaduri, Division of Medicinal Chemistry, Central Drug Research Institute, Lucknow and Dr A K Mukherjee, Department of Chemistry, Banaras Hindu University, Varanasi

10 Majumdar, Ruby Absorption on some oxide surfaces. BHU Dr S D Khatni, Department of Chemistry, Banaras Hindu University, Varanasi

11 Nandi, Tapas Kumar Electrochemical screening of some drugs with medicinal, biochemical and industrial view points. H S Gour Dr K S Pitre

12 Pandey, Karunamay Studies on organometallic compounds. BHU Dr V P Singh, Department of Medicinal Chemistry, Banaras Hindu University, Varanasi.

13 Ramesh Kumar, A V Chemical effects of nuclear transformation in inorganic system. BHU Dr S P Mishra, Department of Chemistry, Banaras Hindu University, Varanasi

14 Sharma, Rani. Physical chemistry of L B film. BHU Dr R A Singh, Department of Chemistry, Banaras Hindu University, Varanasi

15 Singh, Dileep Kumar Transition metal complexes of dithioligands. BHU Dr N K Singh, Department of Chemistry, Banaras Hindu University, Varanasi

16 Singh, Kalpana. Microdeterminations of some organic compounds using tripositive copper. BHU Dr D Singh, Department of Chemistry, Banaras Hindu University, Varanasi

17 Singh, Ram Shankar Synthesis of heterocyclic compound. BHU Dr R M Singh, Department of Chemistry, Banaras Hindu University, Varanasi

18 Tek Chand Natural product synthesis: Synthesis in terpenoids and related compounds. Panjab Dr M L Sharma, Department of Chemistry, Panjab University, Chandigarh.

19 Thomas, Raina. Studies on interaction of some pollutants on synthetic gel and it's role in waste water treatment. Kerala Dr T S Anirudhan, Lecturer, Department of Chemistry, University of Kerala, Thiruvananthapuram

20 Tripathi, Maniraj Prasad Studies on soil and water pollution in some cement industry areas of M P with special reference to Darnoh District. H S Gour Dr V K Chitale

21 Yadav, Abhimanyu Studies on water pollution and sludges treatment for heavy metal removal. BHU Prof D C Rupasingh, Department of Applied Chemistry, Banaras Hindu University, Varanasi and Dr K C Pathak, Department of Applied Chemistry, Banaras Hindu University, Varanasi

22 Yadav, Lal Bahadur Singh Studies on organometallic and trimetallic compounds. BHU Dr V P Singh, Department of Medicinal Chemistry, Banaras Hindu University, Varanasi

Earth Sciences

1 Bhriku Shankar Geology and geochemistry of tin mineralisation associated with Almora granitoids, lesser Himalaya, India. BHU. Dr Satyendra Singh, Department of Geology, Banaras Hindu University, Varanasi.

2. Khare, Sunil Kumar Petrology of the area around Gangajunadugala District of Vishakhapatnam, A P. BHU Dr Anand Mohan, Department of Geology, Banaras Hindu University, Varanasi

3. Manish Kumar Petrology of the area around Kinchamunda, District Vishakhapatnam, A P. BHU Dr Anand Mohan, Department of Geology, Banaras Hindu University, Varanasi

4 Ojha, Vidya Sagar Geochemistry of rocks around Kesharigaria and Champua, District Singhbhum, Bihar. BHU Dr R B Srivastava, Department of Geology, Banaras Hindu University, Varanasi

5 Pandey, Krishna Kumar. Palaeontological studies of Jurassic sediments of Kachchh, Gujarat. BHU Dr A K Jaitly, Department of Geology, Banaras Hindu University, Varanasi.

6 Sanjiv Kumar Petrology and tectonics of Mandi granite, District Mandi, Himachal Pradesh, India. Panjab Prof L N Gupta, Department of Geology, Panjab University, Chandigarh and Dr Ravindra Kumar, Reader, Department of Geology, Panjab University, Chandigarh

7 Singh, Dhruvendra Coal geology and sedimentology BHU Dr N P Singh, Chief Geologist, Oil and Natural Gas Commission, Baroda and Prof R M Singh, Department of Geology, Banaras Hindu University, Varanasi.

8. Srivastava, Madan Mohan Development of field and interpretational techniques in hard rock hydrogeophysics. BHU Dr P C Chandra, Central Ground Water Board, Ministry of Water Resources, Northern Region, Lucknow and Prof T Lal, Department of Geophysics, Banaras Hindu University, Varanasi.

9 Verma, Chhabi Nath Characteristics of seismic waves in Indian subcontinent. BHU Shri R N Prasad, Director (Geophysics), Geological Survey of India, Lucknow and Prof Avadh Ram, Department of Geophysics, Banaras Hindu University, Varanasi

Engineering & Technology

1 Ahuja, Pradeep Energy engineering. BHU Prof P C Singh, Department of Chemical Engineering, Banaras Hindu University, Varanasi

2. Anil Kumar Modelling and performance simulation of switched reluctance motor drives. BHU Dr S N Singh, Department of Electrical Engineering, Banaras Hindu University, Varanasi

3. Ansari, Jamshed Aslam Dielectric horn. BHU Prof R K Jha, Department of Electronics Engineering, Banaras Hindu University, Varanasi

4 Bhattacharya, Amrita. Microprocessor applications. BHU Prof Raghunath, Department of Electronics Engineering, Banaras Hindu University, Varanasi

5 Birendra Kumar. Synchronous motor drives. BHU Dr S N Singh, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

6. Christopher, C Chandrasekar Preparation and characterisation of perovskite oxides. BHU Dr Om Prakash, School of Materials Science and Technology, Banaras Hindu University, Varanasi and Dr Devendra Kumar, Department of Ceramic Engineering, Banaras Hindu University, Varanasi

7 Jha, Kanbaya. Reinforced earth. BHU Dr Chandan Ghosh, Department of Civil Engineering, Banaras Hindu University, Varanasi

8 Joshi, S N Broadbanding in helix travelling-wave tubes. BHU Dr P D Vyas, Central Electronics Engineering Research Institute, Pilani and Prof B N Basu, Department of Electronics Engineering, Banaras Hindu University, Varanasi

9 Kapoor, Arun Kumar Resonant D C link inverter. BHU Prof A N Tripathi, Department of Electrical Engineering, Banaras Hindu University, Varanasi

10 Karunakaran, V V Studies on polyurethane foams and elastomers especially concerning their energy absorption characteristics and vibration damping properties. Kerala Dr K N Ninan, Vikram Sarabhai Space Centre, Thiruvananthapuram

11 Niknejad Abdol Hossain Special purpose electro magnetic device for robotic applications. BHU Dr S N Mahendra, Department of Electrical Engineering, Banaras Hindu University, Varanasi.

12 Pandey, Lalit Kishor Some factors affecting drillability of rocks at elevated temperature BHU Dr A K Jain, Department of Mining Engineering, Banaras Hindu University, Varanasi

13 Pandey, Prabhat A study of some factors affecting the performance of rock drills. BHU Prof R Nath, Department of Mining Engineering, Banaras Hindu University, Varanasi

14 Pathak, Dharmendra Kumar Catalytic air - oxidation of butene to maleic anhydride in vapour phase BHU Dr P N Tiwari, Department of Chemical Engineering, Banaras Hindu University, Varanasi

15 Rai, Priyush Operation of fully mechanised longwall faces in India. BHU Prof R Nath, Department of Mining Engineering, Banaras Hindu University, Varanasi

16 Rajendra Prasad Remote sensing. BHU Prof K P Singh, Department of Electronics Engineering, Banaras Hindu University, Varanasi

17 Roy, Umesh Kumar Thermodynamic properties of binary system. BHU Dr N S Garg, Department of Chemical Engineering, Banaras Hindu University, Varanasi

18 Sachan, Prakash Chandra Removal of some heavy metals from waste water by adsorption. BHU Prof S N Upadhyay, Department of Chemical Engineering, Banaras Hindu University, Varanasi.

19 Shrestha, Shankar Prasad. Restacking transition in layered materials. BHU Dr D Pandey, School of Materials Science and Technology, Banaras Hindu University, Varanasi

20 Shrivastava, Ravi Prakash Microwave remote sensing. BHU Prof K P Singh, Department of Electronics Engineering, Banaras Hindu University, Varanasi

21 Shubha. Optical effect in semiconductor devices. BHU Prof B B Paul, Department of Electronics Engineering, Banaras Hindu University, Varanasi and Dr R U Khan, Department of Electronics Engineering, Banaras Hindu University, Varanasi

22. Singh, Rajesh Kumar Pollution control and waste disposal in sugar industry. BHU Dr K K Srivastava, Department of Chemical Engineering, Banaras Hindu University, Varanasi

23 Singh, Rakesh Kumar Catalytic combustion of organic vapours: An approach to air pollution control. BHU Dr A S K Sinha, Department of Chemical Engineering, Banaras Hindu University, Varanasi

24 Singh, Ram Pratap Estimation of some parameters of blast design in furnace mining. BHU Prof J G Singh, Department of Mining Engineering, Banaras Hindu University, Varanasi

25 Srivastava, Sidhatri Kumar Photovoltaic electric systems. BHU Dr S N Singh, Department of Electrical Engineering, Banaras Hindu University, Varanasi

26 Srivastava, Sunil Kumar Dynamics of fluid films in hydrodynamic lubrication. BHU Dr M K Ghosh, Department of Mechanical Engineering, Banaras Hindu University, Varanasi

27 Sushil Kumar Amorphous semiconductors. BHU Dr P N Dixit, Thin Film and Amorphous Materials Group, National Physical Laboratory, New Delhi and Dr S K Srivastava, Department of Electronics Engineering, Banaras Hindu University, Varanasi

BIOLOGICAL SCIENCES

Anthropology

1 Sachdeva, Rosy Specific differences in the serological activity of anti-H type lectins and their interaction with secreted antigens in human saliva. Panjab Prof V Bhalla, Department of Anthropology, Panjab University, Chandigarh

Marine Sciences

1 Mammachan, Lekha Studies on the nutritive status of certain selected prawns from Ashtamudi Estuary Kerala. Dr Tresa V Fernandez, Lecturer, Department of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram

2 Manju, K G Studies on single cell protein as feed for a cultivable fish and a prawn. Kerala Dr K Dhevendran, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram

3 Neena, K R. Structural, functional and ecological aspects of epiphyte-macrophyte relationship. Kerala Dr K Padmakumar, Lecturer, Department of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram.

4 Padmaja Devi, P Studies on the fishery and biology of the lobster, *Thenus orientalis*. Kerala Dr G Saraswathy Ammal, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram

5. Padmini Devi, S Studies on *Canio* spp of the south-west coast of India. Kerala Dr S D Ratakumari, Lecturer, Department of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram

6 Sareena, O Ecology of the Vellayani Lake in Southern Kerala. Kerala. Dr P K Abdul Aziz, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram.

7 Suvarna Devi, S. Influence of habitat on the biology of larvivorous teleosts. Kerala. Dr S D Rukakumari, Lecturer, Department of Aquatic Biology and Fisheries, University of Kerala, Thiruvananthapuram.

Biophysics

1 Singh, Lalan Prasad Study of haemorrhological parameters in cardio-vascular ischemia as compared to normal controls. BHU Dr H D Khanna, Department of Biophysics, Banaras Hindu University, Varanasi

Biochemistry

1 Lal, John J Effects of the consumption of alcoholic beverages by rats during pregnancy on different developmental stages of the foetus. Kerala Dr P L Vijayammal, Reader, Department of Biophysics, University of Kerala, Kanavattom and Dr M Indira, Technical Officer, Department of Biochemistry, University of Kerala, Kanavattom

2 Prathibha, S. Investigations on enzyme inhibitors in tuber crops. Kerala Dr S Leelamma, Reader, Department of Biochemistry, University of Kerala, Kanavattom.

3 Ranjit Kumar, C V Sree. Metabolic effects of the consumption of alcoholic beverages by rats during pregnancy on their offsprings. Kerala Dr M Indira, Technical Officer, Department of Biochemistry, University of Kerala, Kanavattom

4 Sindhu Rani, J A Biochemical investigations on dietary fiber from coconut kernel. Kerala Dr T Rajamohan, Reader, Department of Biochemistry, University of Kerala, Kanavattom

5 Singh, Dhanu Shanker Studies on malic enzyme. BHU Dr P K Srivastava, Department of Biochemistry, Banaras Hindu University, Varanasi

6 Suma, K S Effect of diet and life style on the incidence of athero-sclerosis and diabetes. Kerala Dr T Rajamohan, Reader, Department of Biochemistry, University of Kerala, Kanavattom

7 Vinod Kumar Effect of adhesive variability of uropathogenic *Escherichia coli* on biochemistry of renal tissue in experimental pyelonephritis. Panjab Dr Rajeshwar Sharma, Department of Biochemistry, Panjab University, Chandigarh, Dr (Mrs) Saroj Sharma, Department of Microbiology, Panjab University, Chandigarh and Dr S Chhibber, Reader, Department of Microbiology, Panjab University, Chandigarh

Biotechnology

1 Rana, Niraj In vitro motivation of macrophages. BHU Prof Ajit Sodhi, School of Biotechnology, Banaras Hindu University, Varanasi

2 Tiwari, Vaibhav Tissue culture studies on lentil, *Lens esculentum* L. BHU Prof B D Singh, Department of Biotechnology, Banaras Hindu University, Varanasi

3 Verma, Ranjana Development of toxin resistant line of chickpea against *Alternaria* and *Ascochyta*. BHU Prof B D Singh, Department of Biotechnology, Banaras Hindu University, Varanasi

Microbiology

1, Dhawan, Surinder Studies on production, purification and characterisation of staphylokinase from *Staphylococcus aureus*. Panjab Prof K G Gupta, Department of Microbiology, Panjab University, Chandigarh, Dr R Tiwan, Department of Microbiology, Panjab University, Chandigarh and Dr (Mrs) V Prabha, Department of Microbiology, Panjab University, Chandigarh

2 Puri, Neena Production of 2,3-butanediol by genetically and environmentally manipulated microorganisms. Panjab Prof K G Gupta, Department of Microbiology, Panjab University, Chandigarh and Dr Prince Sharma, Department of Microbiology, Panjab University, Chandigarh

3 Vinod Kumar Effect of adhesive variability of uropathogenic *Escherichia coli* on biochemistry of renal tissue in experimental pyelonephritis. Panjab Dr S Chhibber, Reader, Department of Microbiology, Panjab University, Chandigarh and Dr Rajeshwar Sharma, Chairman, Department of Biochemistry, Panjab University, Chandigarh

Botany

1 Hussain Ara Morphogenesis in tropical fruit trees. BHU Prof V S Jaiswal, Department of Botany, Banaras Hindu University, Varanasi and Dr (Mrs) U Jaiswal, Department of Botany, Banaras Hindu University, Varanasi

2 Goswami, Rahul Impact of osmotic stress on biomass production and variation in the biochemical profile of some cyanobacteria. BHU Dr (Mrs) M R Goyle, Department of Botany, Banaras Hindu University, Varanasi

3 Gupta, Meetu Impact of metals (Pb, Hg) on some aquatic mycophytes with special reference to metal binding protein synthesis. BHU Dr Prakash Chandra, Head, Aquatic Botany Laboratory, National Botanical Research Institute, Lucknow and Prof J S Singh, Department of Botany, Banaras Hindu University, Varanasi

4 Maurya, Jagat Narayan Study on photosynthetic behaviour of some cyanobacteria under various stress of their cellular water. BHU Dr S N Tripathi, Department of Botany, Banaras Hindu University, Varanasi

5 Nagraj, Ram Krishna Maurya Environmental biotechnology. BHU Dr R S Upadhyay, Department of Botany, Banaras Hindu University, Varanasi

6 Pandey, Mukesh Biomass production and variation in the biochemical profile of some cyanobacteria in relation to carbon-dioxide stress. BHU Dr (Mrs) M R Govil, Department of Botany, Banaras Hindu University, Varanasi

7 Paul, Salbi Physiological and biochemical studies on survival of some non-spore forming cyanobacteria and water stress. Dr S N Tripathi, Department of Botany, Banaras Hindu University, Varanasi

8 Rai, Shashi Kant. Strain improvement of yield edible mushroom through breeding and its cultivation in tropics. BHU Prof Bharat Rai, Department of Botany, Banaras Hindu University, Varanasi

9 Ramdavan Singh Cytosystematics of algae. BHU Dr B R Choudhury, Department of Botany, Banaras Hindu University, Varanasi

10 Singh, Narsingh. Conversion of lignocellulosic wastes into edible products. BHU Prof Bharat Rai, Department of Botany, Banaras Hindu University, Varanasi.

11. Singh, Pramod Kumar. An integrated ecological study on revegetation of mine spoil. BHU Prof K P Singh, Department of Botany, Banaras Hindu University, Varanasi

12. Singh, Ranjana. Biomass productivity and growth analysis of two varieties of Niger crop. BHU Prof H R Sant, Department of Botany, Banaras Hindu University, Varanasi.

13 Singh, Sudarshan. Role of mobility and chemotaxis of some rhizobacteria on comparative interaction processes. BHU Dr D K Arora, Department of Botany, Banaras Hindu University, Varanasi

14 Tiwari, Dhananath. Influence of grazing and clipping on growth and production of some common grass - legume association. BHU Prof H R Sant, Department of Botany, Banaras Hindu University, Varanasi.

Zoology

1 Anand, Ravinder Jit Kaur. Placental transport. Movement of some selected molecules of low molecular weight, characterisation of the placental transport surfaces and the effect of a number of surface active agents in human term placenta in vitro. Panjab. Dr (Mrs) Usha Kanwar, Department of Zoology, Panjab University, Chandigarh and Dr S N Sanyal, Department of Biophysics, Panjab University, Chandigarh

2 Balamurugan, E. Studies on the regulation of oocyte maturation in the catfish, *Clarias batrachus*. BHU Dr S Rajdan, Department of Zoology, Banaras Hindu University, Varanasi

3 Balaraman, Usha. Physiological basis of aging in the red cotton bug, *Dysdercus cingulatus* Fabr (Heteroptera Pyrrhocoridae. Kerala Dr D Muraliedharan, Department of Zoology, University of Kerala, Kariavattom.

4 Bhattacharya, Deb Ranjan. Induced DNA repair synthesis. BHU Dr (Mrs) M J Raman, Department of Zoology, Banaras Hindu University, Varanasi.

5 Bishnupuri, Kumar Sanjeev. Pineal physiology of mammals. BHU Dr C Halder, Department of Zoology, Banaras Hindu University, Varanasi.

6. Chaube, Shail Kumar. Hormone induced maturation of cat fish and carp oocytes. BHU Dr S Haider, Department of Zoology, Banaras Hindu University, Varanasi

7 Deshpande, Rameah Vamanrao. Evaluation of the sericulture activities and standardisation of sericultural practices in different agroclimatic zones of Maharashtra. Shivaji Dr N K More, Department of Zoology, Shivaji University, Kolhapur

8 Ganguly, Sukhamay. Maternal pineal gland and control: Regulation of foetal reproductive functions. BHU. Dr C Halder, Department of Zoology, Banaras Hindu University, Varanasi.

9 Mishra, Manoj Kumar. Some aspects of photochronobiology of birds. BHU Prof P D Tiwari, Department of Zoology, Banaras Hindu University, Varanasi

10. Nath, Anamika. DNA repair in male germ cells. BHU Dr (Mrs) M J Raman, Department of Zoology, Banaras Hindu University, Varanasi.

11. Singh, Vikas. Hormonal control of hypothalamic monoaminergic activity in the teleost, *H. fossilis*. BHU Dr K P Joy, Department of Zoology, Banaras Hindu University, Varanasi

12. Sisodia, Seema. Behavioural genetics of *Drosophila*. BHU Prof B N Singh, Department of Zoology, Banaras Hindu University, Varanasi

13 Tahal, Ram. Role of LHPs in growth metamorphosis and reproduction of some lepidopterans. BHU Dr A Acharya, Department of Zoology, Banaras Hindu University, Varanasi
Medical Sciences

1 Chaubey, Sadanand. Ayurvedic samagriyon me chhandogyanishad ka ek samikshatmak adhyayan. BHU Dr L P Gupta, Department of Basic Principles, Banaras Hindu University, Varanasi

2 Gupta, Sudhir. Helicobacter pylori in acid peptic diseases. BHU Dr A K Jain, Department of Medicine, Banaras Hindu University, Varanasi

3 Jagatap, Pratap Ekanath. Lipid peroxide, superoxide dismutase and trace elements in cancer. Shivaji Dr S K Ahaley, Government Medical College, Miraj

4 Kulkarni, Vajayanti Vijay. Role of mycoplasma in human diarrhoea. Shivaji Dr (Smt) S G Pawar, Government Medical College, Miraj

5 Mishra, Arti. Studies in health and disease. BHU Prof G P Dubey, Department of Basic Principles, Banaras Hindu University, Varanasi

6 Mishra, Manisha. Protein phosphorylation in developing rat brain during hypomyelination: A functional study with the special reference to role of synapsis. Dr R S Dubey, Head, Department of Biochemistry, Banaras Hindu University, Varanasi and Prof G P Dubey, Department of Basic Principles, Banaras Hindu University, Varanasi.

7 Phatak, Jayanti Uday. Immunodiagnosis of tuberculosis. Shivaji Dr (Smt) S G Pawar, Government Medical College, Miraj

8. Singh, Baleshwar. Tantra vangmay me nihit ayurvediya samagri ka adhyayan. BHU Prof Jyoti Mitra, Department of Basic Principles, Banaras Hindu University, Varanasi

9 Singh, Kusum Lata. Sanskrit evam ayurveda sahitya ke paripexhya mein padmapuran ka ek alochanatmak adhyayan. BHU Dr L P Gupta, Department of Basic Principles, Banaras Hindu University, Varanasi.

10. Srivastava, Shashi. Concept of biofeedback in classical texts of ayurveda. BHU. Prof G P Dubey, Department of Basic Principles, Banaras Hindu University, Varanasi.

11 Tiwari, Pradeep Kumar. Sanskrit evam ayurveda sahitya ke paripexhya mein kiratarjuniyam ka ek samikshatmak adhyayan. BHU Dr L P Gupta, Department of Basic Principles, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A list of Doctoral Theses accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

- 1 Acharya, Prafulla Kumar Homotopy limits in groupoid enriched categories. Sambalpur Dr Akur Behera, Lecturer, Department of Mathematics, Regional Engineering College, Rourkela
- 2 Eaqub Ali, S M On generating functions of certain special functions. Calcutta
- 3 Eswara, A T Numerical investigations of unsteady incompressible boundary-layer flows. IISc
- 4 Khan, Mushir Ahmad Some generalized sequence spaces and matrix transformations. AMU Dr FM Khan, Reader, Department of Mathematics, Aligarh Muslim University, Aligarh
- 5 Patidar, Satish Chandar On some summability problems of Legendre and Laplace series. Vikram Dr Sushil Sharma, Department of Mathematics, Govt College, Jhabua
- 6 Sathyakrishna, M Analysis of some unsteady laminar boundary-layer flows using numerical methods. IISc
- 7 Sharma, Yogesh Kumar A study of sub-classes of univalent and related functions. Jamia Dr Iqbal Ahmad, Reader, Department of Mathematics and Computer Science, Jamia Millia Islamia, New Delhi

Statistics

- 1 Lahiri, Sangeeta Sensitivity of Bayes decisions for linear model with non-normal prior distributions. Delhi

Physics

- 1 Adhikari, Rathin Some applications of supersymmetric quantum mechanics. Visva-Bharati Prof Ranabir Dutt, Department of Physics, Visva Bharati, Santiniketan
- 2 Balagurusamy, V S K Studies on quasiperiodic structures and Al-Li-Cu quasicrystals. IISc
- 3 Bhardwaj, Manoj Kumar Study of excitation functions for alpha induced reactions in some nuclei at cyclotron energies. AMU Prof A K Chaubey, Department of Physics, Aligarh Muslim University, Aligarh
- 4 Chaudhary, Prakash Study of dyons in six dimensional space-time Kumaun Dr B S Rajput
- 5 Grewal Darshan Characteristics of secondary particles in proton-emulsion nuclei interactions at 800 Gev Delhi
- 6 Kariyappa R. Study of inhomogeneities in the solar atmosphere Bangalore Prof K R Shivaraman, Indian Institute of Astrophysics, Bangalore and Dr M N Anandaramu, Reader, Department of Physics, Bangalore University, Bangalore
- 7 Madhavan, K T Development of data processing techniques for laser doppler velocimeter based flow measurements. IISc
- 8 Naik, P S Study of phonon instabilities and its implications on electronic transport process in two dimensional semiconductors. Gulbarga Dr B S Krishnamurthy, Department of Physics, Gulbarga University, Gulbarga
- 9 Pandey, Suresh Chandra Supermassive structures in general relativity Kumaun Dr M C Durgapal
- 10 Pant Rajendra Prasad P Physico-chemical aspects of ferro fluid. Bhavnagar Prof R V Mehta, Head, Department of Physics, Bhavnagar University, Bhavnagar

- 11 Pant, Sanjay. Excited state dynamics in some xanthene dyes and methoxy quinoline derivatives. Kumaun Dr H B Tripathi

12. Tembhurkar, Yashwantrao Dhaduji Study of structural, optical and electrical properties of some spray pyrolytically prepared semi conducting thin films. Nagpur Dr (Mrs) J P Hinde, Department of Physics, Institute of Science, Nagpur

Chemistry

- 1 Agnihotri, Narinder Kumar Simultaneous microdetermination of some metal ions with dihydroxyquinones in micellar media using high order derivative spectrophotometry (HODS) Delhi
- 2 Aruna Sree, K. Platinum metal complexes with terfunctional ligands containing pyridyl, amido and alpha or beta-hydroxy groups. Osmania
- 3 Bhujanga Rao, A K S Synthetic investigations on N- substituted 4-and 4-nitro-1H-imidazoles. IISc
- 4 Chattaraj, Sarnath Indirect determination of inorganic anions and organic compounds by atomic absorption spectrometry Burdwan Dr Arabinda kumar Das, Prof, Department of Chemistry University of Burdwan, Burdwan
- 5 Ghosh, Tapaskumar Metal ion interaction with some antibiotic drugs of the penicillin family. Calcutta
- 6 Gupta, Swaroop Rani Nandkishore Polarographic and potentiometric studies of some organic compounds. Nagpur Dr M N Ray, Department of Chemistry, Nagpur University, Nagpur
- 7 Holla, Vijayakumar R. Biosynthesis of indole alkaloids in the higher plant Catharanthus roseus : Is cytochrome B5 system involved in the cytochrome P-450 mediated geraniol hydroxylation. IISc
- 8 Joshi, N.A. Studies on heterocyclic compounds. Saurashtra Dr (Smt) H H Parekh, Reader, Department of Chemistry, Saurashtra University, Rajkot
- 9 Kashyap, Tapan Kumar Phytochemical investigations on some high altitude flora. Kumaun Dr A B Melkan
- 10 Khan, Mubeen Ahmad Studies on synthetic inorganic ion-exchange materials and their application in the removal of pollutants. AMU Prof Saiduzzafar Qureshi, Department of Chemistry, Aligarh Muslim University, Aligarh
- 11 Ladva, K D Studies on some compounds of medicinal interest. Saurashtra Dr (Smt) H H Parekh, Reader, Department of Chemistry, Saurashtra University, Rajkot
- 12 Lakshmana Rao, Chundun Venkata Metabolites of marine organisms. New polyhydroxy sterols from three species of Alcyonacea of the Indian Ocean. Andhra
13. Leelavathi, P Synthesis and biological activity of 1, 3-dicarbonyl compounds and their heterocyclic derivatives. Osmania
- 14 Malhotra, Varun Kumar Chemistry of some insecticides and naturally occurring polyphenolics. Delhi
- 15 Mathews, I I Investigations on the reactions of vitamin B6 in model systems: Synthesis and structural studies on metal complexes of vitamin B6 - related compounds. IISc
- 16 Pandey, Madhu Synthesis and characterisation of coordination compounds of some D - F block metals with novel schiff bases. Durgawati Dr D D Mishra, Prof and Head Department of Chemistry, Rani Durgawati Vishwavidyalaya, Jabalpur and Dr R C

Mourya, Department of Chemistry, Rani Durgawati Vishwavidyalaya, Jabalpur.

17 Pragas Charyulu, P V P Chemistry of spironaphthalenones - synthesis and reactions of oxygen and nitrogen heterocycles. IISc.

18. Ramachandran, A Studies on electroplating of zinc and alloys of Ni-Fe and Co-W. Bangalore. Prof S M Mayanna, Department of Chemistry, Bangalore University, Bangalore

19. Sarmah, Chandra Sekhar Studies on the bridgehead and bridged hetero annulenes. Gauhati Dr J C S Katak, Asstt Director, Division of Organic Chemistry, Regional Research Laboratory, Jorhat and Prof P K Sarma, Department of Chemistry, Gauhati University, Guwahati

20 Sarvojit Singh Synthesis and characterisation of titanium (IV) complexes of substituted phenols. HP

21 Shah, Ranjana. Elemento-organic derivatives of some tetravalent elements with N-(O-hydroxy substituted benzyl) amines. Kumaun Dr M Chandra

22. Singha, N C ¹H and ¹³C NMR spectra and conformation of pyridine carboxamides. A study of molecular conformational dependence of hydrogen bonding. IISc

23 Soi, Vijay Kumar Studies on the chemical degradation products and intermediates in the estimation of trace chemicals present as pollutants in aqueous systems. Burdwan. Dr N Kurmanah, Asstt Prof, Department of Chemistry, Regional Engineering College, Durgapur

24 Sreenivas Reddy, V Transition metal organometallic chemistry of 1, 3, 2³, 4³ - diazadiphenylidines. IISc.

25 Sumathy, R. Theoretical studies of the alpha and beta cleavage processes in organic photochemistry IISc.

26 Venugopalan, S Electrochemical studies of sealed lead-acid battery electrode reactions. IISc

27 Verma, Sangeeta Studies on phytochemicals and bioactivity of some plants of Kumaun Himalaya. Kumaun Dr (Smt) Ganga Bisht.

28 Yadav, Shiv Kumar Synthetic and structural studies in quinonoid compounds. Delhi

Earth Sciences

1 Athaya, Praval Slope in stability Investigations of the Dabak catchment, District Nainital with special reference to environmental hazard zone mapping. Kumaun Dr A K Sharma

2 Bisht, Manoj Kumar Singh Geohydrological and geomorphological investigations of the Dabka Catchment, District Nainital with special reference to problem of erosion. Kumaun Dr A K Sharma

3 Khan, Farahum Geochemistry and genesis of Mussoorie phosphorites, District Dehradun, U P. AMU Prof S H Israih, Head, Department of Geology, Aligarh Muslim University, Aligarh.

4 Mangai, Dinesh Chandra. Tectonics and petrological studies of rocks around Champawat, Lohaghat Area, District Pithoragarh, U P. Kumaun. Dr O P Goel.

5 Mishra, Narendra Kumar Banded iron formation and associated rocks around Deogarh, Sambalpur District, Orissa, India. Their structure, stratigraphy, geochemistry and petrogenetic evolution. Sambalpur Dr Hrushikesh Sahoo, Reader, Post Graduate Department of Earth Sciences, Sambalpur University, Burla.

6 Sareen, Basant Kumar Geomorphology, neotectonics, late quaternary sedimentation patterns and TL chronology of the semi-arid Sabarmati Basin, Gujarat Alluvial Plain, India. Delhi

7 Trivedi, Vandana. Small shelly fauna from pre-phosphorite sequence of Krol Belt, Lesser Himalaya, Uttar Pradesh, India. Delhi

Engineering & Techn

1 Balamurah Hc resistant high chrom

2. Chakravarty, I trol of micro-structure processing maps. Zf O.5 Cu. IISc.

3. Chattopadhyay, Iulose and vinyl-butyl Calcutta

4 Gupta, Sanjeev in turbulent stirred,

5 Jawahar Red plates-new refined models. IISc

6. Kabasi, Apur, semiconducting syst

7 Kohli, Sangeet in biomass steves. II

8 Mall, Rajib - real-time systems. II

9 Muralidhar, G, films. IISc.

10 Padmavaradha of alpha and beta ph alpha - beta brasses a maps. IISc.

11 Pattnaik, Shy microstrip antenna or applications. Sambal Electronics and Tele University, Burla

12. Radha Bai, T with holography and s

13 Rajanna, K. Si starin gauges. IISc

14 Rashid, R A K. na arrays. IISc

15 Ravindran, K. fluid flow in laser me

16. Satish, L. S for partial discharge

17 Sekhar, M an aquifer water tab

18. Shashidhara, plus allowances Total emolu- zene to styrene in th the pay scale is Rs 7820/- p m and zirconium phosph. IISc

19 Sivaramakumar, G R. Model matching and adaptive control of finite and infinite dimensional systems. IISc

20 Sohony, Rajiv Anant Adsorption of sulphur dioxide over alkalized alumina in a fixed bed reactor IISc

21 Srinivas, T Applications of coupled-mode theory to fiber and integrated optic waveguide structures. IISc

22. Surya Rao, Kotagin Chna. Kinematic analysis of single loop spatial mechanisms. Andhra

23 Thyagarajah, K. Study on converters and control techniques for high performance permanent magnet synchronous motor drives. IISc

24 Venugopal, K. A unified approach to solve the intersection curve tracing problem in geometric modelling. IISc

State Bank of India, Bambolim Branch, should be sent so as to reach him on or before 3rd June, 1993 in case of M.M.S. course and 11th June, 1993 in case of M.C.A. course

G.V. Kagal
REGISTRAR

St. Mary's College,
Manarcad,
Malam P.O.,
Kottayam-686031
Kerala, India

WANTED LECTURERS

In Malayalam, Hindi, Mathematics and Physical Education (one each under Open ment)

Qualification : As per U G C. norms

Age : As applicable for Direct recruitment of teachers in Government Colleges.

Those who have appeared for the examination may also apply but they will be interviewed only if they produce the certificates and marklist at the time of interview

Apply within one month from the date of this notification Application form and other details can be had from the undersigned on payment of Rs. 50/- (M O Rs 60/-)

PRINCIPAL

INSTITUTE OF
CHNOLOGY

ENT NO: H-1/93-84

for the permanent post of (ACADEMIC), Scale of pay plus allowances Total emolu- zene to styrene in th the pay scale is Rs 7820/- p m and zirconium phosph. IISc

A list of Doc

PHYSICAL SCIENCES

Mathematics

1 Acharya, Prafulla Kumar. Homotopy limit enriched categories. Sambalpur Dr Alkur Behera, Department of Mathematics, Regional Engineering College

2 Eaqub Ali, S M On generating functions & functions. Calcutta

3 Eswara, A T Numerical investigations of presable boundary-layer flows. IISc

4 Khan, Mushir Ahmad. Some generalized and matrix transformations. AMU Dr FMKharment of Mathematics, Aligarh Muslim University,

5 Patidar, Satish Chandar On some summa Legendre and Laplace series. Vikram Dr Sushiment of Mathematics, Govt College, Jhabua

6 Sathyakrishna, M Analysis of some boundary-layer flows using numerical methods

7 Sharma, Yogesh Kumar A study of sub- and related functions. Jamia Dr Iqbal Ahment of Mathematics and Computer Science, J New Delhi

Statistics

1 Lahiri, Sangeeta Sensitivity of Bayes model with non-normal prior distributions. I

Physics

1 Adhikari Rathin Some applications quantum mechanics. Visva-Bharati Prof Rament of Physics, Visva Bharati, Santiniketan

2 Balagurusamy, V S K Studies on quasi and Al-Li-Cu quasicrystals. IISc

3 Bhardwaj, Manoj Kumar Study of excit alpha induced reactions in some nuclei at AMU Prof A K Chaubey, Department of Physics, University, Aligarh

4 Chaudhary, Prakash Study of dyons in space-time Kumaun Dr B S Rajput

5 Grewal Darshan Characteristics of seco proton-emulsion nuclei interactions at 800 Gev

6 Kariyappa R Study of inhomogeneities

PANJAB UNIVERSITY (CHANDIGARH)

(Advertisement No. 5/93)

Applications are invited for the following posts, so as to reach the Registrar, Panjab University, Chandigarh by 21.6.1993.

1 Deputy Registrars - 2 (One post is temporary, but likely to continue)

Grade Rs. 3700-5600 + 200 S.P per month

2. Assistant Registrar - 1

Grade Rs. 2200-4000 + Rs. 200/- Spl. pay p.m. for new entrants

Grade Rs. 2400-4000 + Rs. 200/- Spl. pay p.m. for in-service employees of Panjab University

3. Medical Officer (Male) - 1 (Bhai Ghanaya Ji Health Centre)

Grade Rs. 2200-4000 (with start of Rs. 2250/- plus N.P.A. with free-unfurnished accommodation)

Application form alongwith 'detailed instructions' can be had from the Cashier, Panjab University, Chandigarh personally on payment of Rs. 15/- or by making written request to the Deputy Registrar (Establishment), Panjab University, Chandigarh accompanied with a self addressed stamped (worth Rs. 6/-) envelope of 23x10 cms. and a bank draft of Rs. 15/- drawn in favour of the Registrar, Panjab University, Chandigarh

Diocesan Society of Education's Rosary College of Commerce and Arts Navelim - Goa

Applications are invited for the following posts

Lecturer in Commerce & Accounts - 2 posts (full time)

Lecturer in Maths and Statistics - 1 post (full time)

Lecturer in Commercial - 1 post (full time)

Lecturer in Economics - 2 posts (full time)

Lecturer in English - 3 posts (full time)

Lecturer in Business Law - 1 post (lecture basis)

Lecturer in Konkani - 1 post (full time)

1 post (part time)

8. Lecturer in Hindi - 1 post (lecture basis)

9. Lecturer in Portuguese - 1 post (lecture basis)

10. Lecturer in Psychology - 1 post (full time)

1 post (part time)

11. Lecturer in History - 1 post (full time)

1 post (part time)

12. Lecturer in Sociology - 1 post (full time)

1 post (lecture basis)

13. Lecturer in Tourism and Hotelry - 1 post (lecture basis)

14. Librarian - 1 post (full time)

15. Director of Physical Education - 1 post (full time)

Essential Qualifications

(1) Master's degree in the relevant subject with atleast 55% marks or its equivalent grade and good academic record.

(2) Candidates should have cleared the eligibility test for lecturership. Those who have passed UGC/CSIR/J.R.F. examination or have already been awarded Ph.D. degree or have been awarded M.Phil. degree upto 31st March 1991 or will submit their Ph.D. thesis upto 31st December 1993 are exempted from appearing in the Eligibility Test for lecturership. In case candidates having passed eligibility test are not available, candidates fulfilling other conditions would be appointed on temporary basis.

Desirable Qualifications

Ph.D. or M.Phil. and a regular student for graduation and postgraduation

Librarian & Director of Physical Education

Qualification prescribed by UGC and Goa University.

Scale of Pay : Rs. 2200-75-2800-100-4000 and other admissible allowances.

Persons who are already employed shall send their applications through proper channel.

Certified copies of statement of marks at all public examinations should be enclosed.

The number of vacancies may change depending on the workload. The right not to fill up any of the above mentioned posts is reserved.

Applications with relevant details should reach the Secretary, Diocesan Society of Education, Bishop's House, Altinho, Panjim-Goa, within 15 days.

Secretary
Diocesan Society of Education

GOA UNIVERSITY

P.O. Bambolim Complex, Goa

No. GU/III/MMS.MCA/93-94/1674

Date : 3/5/1993

ADVERTISEMENT

Notice of admission to (1) M.M.S. and (2) M.C.A. Courses.

Applications are invited for admission to the following courses : (1) Two-year (four semesters) full-time postgraduate course leading to the degree of Master of Management Studies (M.M.S.) of the Goa University

Eligibility for admission and selection of candidates

A graduate in any discipline securing at least 50% of the aggregate marks at the graduation level is eligible for admission. Candidates awaiting results of the qualifying examination may also apply before the due date, if they expect to get at least 50% marks in the aggregate.

Eligible candidates for M.M.S. will have to appear for a written Entrance Test which will be held on 6th June, 1993 at 11.00 hrs. at the University Department of Commerce. Candidates passing the written test will be eligible to appear for the interview/Group discussion on 7th June, 1993 and 8th June, 93. The fees for Entrance Test is Rs. 175/-

(2) Three-year fulltime postgraduate course leading to the degree of Master of Computer Applications (M.C.A.) of the Goa University

Eligibility for the admission and selection of candidates

A graduate in any discipline securing at least 55% of the aggregate marks at the

graduation level and having offered Mathematics at H.S.S.C. (10+2) Level or at a Higher Level is eligible for Admission. Candidates awaiting results of the qualifying examination may also apply, if they expect to get atleast 55% marks in the aggregate.

Eligible candidates for M.C.A. will have to appear for a written Entrance Test of two hours duration to be held on 18th June, 1993 at 11.00 hrs. at the University Department of Commerce. Results of Entrance Test will be declared on the same day by 18.00 hrs. The fees for the entrance test is Rs. 125/-

NO SEPARATE INTIMATION WILL BE SENT IN RESPECT OF THE WRITTEN TESTS

Number of seats available -

There are 30 seats available for enrolment to each M.C.A. and M.M.S. course out of which 24 seats are for students graduating from Colleges in Goa State and the remaining for graduates from other States

Prospectus with the prescribed application form can be obtained at the University office on payment of Rs. 15/- from 10th May, 1993 between 10.00 hrs to 13.00 hrs. Extra postal charges of Rs. 15/- by D.D. will have to be paid by the applicants for the prospectus to be sent by post. The completed application form accompanied by a D.D. in the name of the Registrar, Goa University, drawn on the

State Bank of India, Bambolim Branch, should be sent so as to reach him on or before 3rd June, 1993 in case of M.M.S. course and 11th June, 1993 in case of M.C.A. course

G.V. Kapoor
REGISTRAR

St. Mary's College,
Manarcand,
Malam P.O.,
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WANTED LECTURERS

In Malayalam, Hindi, Mathematics and Physical Education (one each under Open merit)


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Apply within one month from the date of this notification. Application form and other details can be had from the undersigned on payment of Rs. 50/- (M.O. Rs. 60/-)

PRINCIPAL



INDIAN INSTITUTE OF TECHNOLOGY

ADVERTISEMENT NO. H-1/93-94

Applications are invited for the permanent post of **DEPUTY REGISTRAR (ACADEMIC)**, Scale of pay Rs. 3700-125-4950-150-5700 plus allowances. Total emoluments on the minimum of the pay scale is Rs. 7820/- p.m. including H.R.A.

QUALIFICATIONS & EXPERIENCE. (1) A postgraduate degree with atleast 55% marks or its equivalent grade (2) 8 years experience as a Lecturer in a College or a University with experience in Educational administration OR comparable experience in research establishments and other institutions of higher education OR 8 years administrative experience as Assistant Registrar or in a post carrying a scale of pay of Rs. 2200-4000

Application form and full details can be obtained from Registrar on request accompanied by a self-addressed envelope of size 25 cm x 10 cm (affixing Re. 1 stamp). Completed application-form should reach the Registrar by **30th June, 1993**

REGISTRAR



UNIVERSITY OF MADRAS

NOTIFICATION

Applications are invited for admission to the following Postgraduate Courses in the University Departments for the academic year 1993-94

1. M.A. Degree Course CHEPAUK CAMPUS

I-A	History*
II-C	Political Philosophy
III-C	Economics [Econometrics]
III-D	Economics [Indian Economics]
V-B	Indian Philosophy
V-C	Sarva Siddhantha
VI-E	Applied Psychology and Psychological Services
VII	French
VIII	Indian Music
IX	Ancient History & Archaeology
XIII	Sociology
XIV	Anthropology
XVI	Defence & Strategic Studies
XVII	Andragogy
M.A.	Work Education
M.A.	Communication
M.A.	Criminology*
M.A.	Jainology
M.A.	Vaishnavism
M.A.	Public Affairs

MARINA CAMPUS

VII	Urdu
	Persian
	Hindi
	Kannada
	Malayalam
	Telegu [Special]
VII-A	Sanskrit
VII-B	Tamil [Special]

CHEPAUK CAMPUS

2	M Com [Business Systems]
3	M Sc. Degree Course in Library & Information Science [2 year course]
4	M. Sc. Degree Course

CHEPAUK CAMPUS

I-A	Mathematics
II-A	Statistics [Semester System]
VIII-A	Applied Geography [Semester System]

GUINDY CAMPUS

III-A	Biophysics
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III-C	Physics [Semester-Credit System]
	[a] Theoretical Physics
	[b] Nuclear Physics
IV-B	Analytical Chemistry [Semester-Credit System]
IV-C	Physical Chemistry [Semester-Credit System]
IV-D	Organic Chemistry [Semester-Credit System]
IV-E	Inorganic Chemistry [Semester-Credit System]
IV-G	Environmental Chemistry
VI-C	Zoology [Special] [Semester-Credit System]
VII-A	Applied Geology
VII-C	Geology
X	Biochemistry
M Sc	Plant Science
TARAMANI CAMPUS	
M.Sc.	Br X Biochemistry
M Sc	Environmental Toxicology*
M.Sc.	Biomedical Genetics
M Sc	Microbiology*
	[Faculty of Medicine-3years]
M Sc	Anatomy*
	[Faculty of Medicine-3years]

M.Sc. Physiology
[Faculty of Medicine-3years]

*conducted on an inter-disciplinary basis

Application form together with the prospectus can be had from The Registrar, University of Madras, Madras-600 005, from 26-5-93, on written requisition, with a demand draft for Rs. 50/- drawn in favour of the Registrar, University of Madras either in person or by post enclosing a self addressed envelope (size 28x13 cms) stamped for Rs. 5/- towards ordinary postage and also the form obtained from Post Office for Certificate of Posting and affixing the stamp for Rs. 2/- or Rs. 10/- towards Registered Postage charges **POSTAL ORDERS AND MONEY ORDERS ARE NOT ACCEPTED**

The last date for issue and for submission of filled-in application is 25-6-1993.

Filled-in application, one for each course should be sent directly to the Head of the University Department concerned, before the expiry of the last date prescribed and not to the Registrar, University of Madras.

The University reserves the right to start or suspend the conduct of any of the above courses, if the circumstances so warrant

REGISTRAR

MAHATMA GANDHI UNIVERSITY

Notification

No. 6721/88/AII(1)/Admin.

Dated, Athirampuzha, 30-3-93.

Applications in the prescribed form are invited from qualified candidates for appointment to the following posts in the University. The appointments will be governed by the provisions of the Mahatma Gandhi University Act and the statutes and ordinances applicable thereunder

Sl No	Name of Post	No of posts	Scale of pay	Specialisation	Remarks
1	Lecturer, School of Biosciences	1	Rs. 2200-4000	Microbiology	Ezhava
2.	Lecturer, School of Pure & Applied Physics	1	Rs. 2200-4000	Solid State theory/Experiment	SC/ST
3	Lecturer, School of Pure & Applied Physics	1	Rs. 2200-4000	X ray diffraction	Open

Application forms alongwith details regarding qualifications for the posts, age limits, application fee etc can be had directly or by post from the Joint Registrar, Mahatma Gandhi University, Priyadarsini Hills, Kottayam 686 560, on payment of Rs. 20/- to be remitted by pay-in-slip in the current account of the University with the SBT or in the Government Treasury under the Head of Account 8658-102-96(1) E. Applicants from outside the state shall remit the prescribed fee by crossed postal order/Demand Draft drawn in favour of the Finance Officer, Mahatma Gandhi University, payable at SBT Athirampuzha. Those who wish to get the application form by post shall send a self-addressed envelope of size 27 cm x 12 cm affixing stamps worth Rs. 2/- Last date for receipt of filled in applications is 10-6-1993.

Office of the Mahatma
Gandhi University, Priyadarsini Hills
(PO) Kottayam.

Dr. M C. Chacko
REGISTRAR